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CONTENTS

GEOGRAPHICAL INSTITUTE "JOVAN CVIJIĆ" SASA
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DEGRADATION PROCESSES IN RURAL BORDERLINE SETTLEMENTS IN THE REGION OF VRŠAC MOUNTAINS

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Abstract: This study deals with a few relevant indicators that clearly and consistently illustrate degradation processes in seven borderline rural settlements of the mountainous region around Vršac. The above mentioned processes tend to affect demographic phenomena and processes as well as the economic situation, i.e. the structure and functioning of agricultural production, in the first place. What is characteristic about this region is stagnation and deterioration of major branches of economy, not only due to specific natural qualities of the mountains in this region, as well as general current economic politics towards most borderline areas in Serbia, but also due to the fact that these villages cannot even find stimulating economic support in cooperation with nearby borderline region of Romania, which is actually one of the poorly developed regions of the Romanian part of Banat.

Key words*:* Vršac Mountains, rural settlements, demographic characteristics, economy, tourism

Introduction

Borderline rural settlements of Vršac Mountains, such as: Veliko Središte, Gudurica, Jablanka, Malo Središte, Markovac, Mesić and Sočica, are specific in its position and morphology which distinguishes them from a certain uniformity of most villages in Vojvodina. External impression about their distinctiveness becomes more versatile and profound by analyzing all the factors that reflect problems of economy and people's lives in general. Nature, history and economic politics have affected people in this area to have more complex pursuit of their own social-economic identity. These have manifested in people's isolation within their local area on the one hand, and, on the other hand, in people's decision to leave their place of origin. This is why it is necessary to undertake a studious interdisciplinary valorization of the area and find the solution of its all - purpose revitalization.

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Geographic position and major physical and geographical characteristics

Vršac Mountains, the remnants of the north part of Serbian-Macedonian mass (Zeremski, 2005) are located in southeast Banat, to the east of Vršac. In their base they stretch out in the direction of east-west, on Serbian territory, in total length of 15 km. In the direction of north-south, the greatest width is 12 km, and the least is 3.5 km. Its total area is 172 km^2, out of which 122 km^2 is in Serbia. Geomorphologically-wise these mountains have a rather asymmetrical character in the north-south direction. Thus, northern part makes the central mountainous mass, going downhill in a steep slope, across a narrow abrasive area, towards Vršac Trench; and the southern one across abrasive surfaces erosive in their origin, and then it gradually moves into the valley, which consists of abrasive accumulative surfaces. The central massif represents rocky blocks differentiated by faulting, the highest one being Gudurički vrh (641m) (Zeremski, 2005).

There are seven settlements on the mountain – on the northern slopes there are Veliko Središte, Malo Središte, Gudurica and Markovac; and on the southern ones there are Mesić, Sočica and Jablanka. All the settlements are situated on sub mountainous accumulative surfaces, by upper streams of Mesić, Markovac, Malo Središte, Fizeš and Guzajna creek. This position was affected by the fact that accumulative surfaces are mainly mild and more convenient for agriculture, as opposed to the central mountainous mass that has steep slopes and is mostly covered in forest. Besides that, stream valleys have made water supply easier and provided good base for building roads that have been linked to the major traffic arteries in places where stream valleys meet low lying, accessible slopes or river valleys. However, more often than not, during spring showers, floods inflict damage to most of the settlements, thus pointing to a complex discrepancy in the location characteristics.

Villages belong to the east part of the Municipality of Vršac, with the total area of 157.12 km^2, i.e. 19.64% out of this territory. Rumanian border is between 2 and 10 km far. They are linked to Vršac by roads and Veliko Središte is linked by a railroad. Former roads that used to link them to the neighboring Romanian settlements have been out of function since the border formation, after the First World War. The morphology of this region has contributed to the fact that apart from Veliko Središte, settlements have the characteristics of mountainous and mountainous-pannonian type.

The distinctive character of this region is mainly influenced by natural predisposition for agricultural production. In the like manner, beside relief, pedological composition of soil had a significant role.

Geological, morphological and microclimatic features influenced formation of mainly low lying, poorly productive soils with a heavy composition. The most common types are smonitza soil, generated on the abrasive accumulative surfaces, on a base of pontian clay. Although potentially being highly productive, they make a poor base regarding the amount of humus. Thus, plants which are not too delicate as far as type of soil is concerned, but are microclimatic and hydrologically dependable, are the best choice for this region. In the narrow passage in the north and north-east part of the central mountainous mass, on a base of gneiss, acid-brown soils were formed. The terrain morphology and high acidity makes it inconvenient for arable plants, so that they are covered in beech and oak woods and acidic meadow grass. In the stream valleys there are alluvial and talus soil carbon. Although having good qualities, they are mostly covered in meadows and pastures, due to the threat of flooding (Miljković, 1996). Thus, natural potential of this region is, among other things, conditioned by terrain fragmentation and existence of poor productive soils, making conditions for agriculture, especially arable farming for Vojvodinian circumstances, far more inconvenient. They demand special redirection in order to achieve optimal results. However, so far, these conditions have not been used in an adequate way, especially in postwar period, yet the emphasis has been put on classic plants. Bearing in mind the circumstances, they require far greater investment, since they lead to a poor yield otherwise. Nevertheless, material base and production organization is unsatisfactory, since, as far as production function is concerned; more attention has been placed in the plain area of soil, where the profit from investment is more certain.

Demographic characteristics of rural settlements

Borderline settlements of Vršac Mountains are, with an average size of 566 inhabitants, much smaller than the rural ones, whose average number of inhabitants is 1264. Limited in space, they today experience a constant decrease of their population.

Apart from Gudurica and Veliko Središte, other settlements experience decrease of the population since the beginning of the last century. Starting from the first census in 1869, the decrease was caused initially by emigrations which resulted from latent crises in viticulture and later by the emigration of German population just after the World War II. While Gudurica and Veliko Središte attracted newcomers, other settlements, where the number of emigrants was rather insignificant, received no newcomers thus making the tendency of the fall in the number of inhabitants

progress. However, the negative tendency became as well obvious in these two settlements in 1960s. For example, between two post-war censuses (1948-2002) the total number of inhabitants was smaller for 52.75%, while in the settlements in the plain areas of the municipality, which are not near the border, it was smaller for 20.9%. The situation is the most obvious in Sočica (74.01%), Malo Središte (72.48%), Markovac (70.76%), and Jablanica (66.94%), then in Mesić (53.67%), Veliko Središte (34.64%) and Gudurica (9.86). Consequently, the settlements with unfavourable structure of agricultural areas, relatively more expressed isolation compared to Vršac and almost on the very border with Romania experience the greatest decrease in the number of inhabitants.

Table 1. Inhabitants of Vršac and rural settlements of Vršac Mountains from 1836 to 2002

Year.	Veliko Središte	Gudurica	Jablanka	Malo Središte	Markovac	Mesić	Sočica	Basal index	Chain index
1836.	1136	–	626	1480	640	842	6276	–	–
1850.	1798	1538	1374	623	1414	718	845	132,4	132,4
1857.	1908	1688	1405	684	1501	804	929	142, 3	107,3
1869.	1983	2038	1445	711	1572	747	1026	151,6	106,7
1880.	1735	2012	1449	650	1400	807	935	144,0	95,0
1890.	1820	1812	1198	625	1491	762	854	135,8	94,4
1900.	2046	1999	1233	647	1527	747	875	144,6	106,4
1910.	2287	2042	1269	633	1438	726	925	148,5	102,7
1921.	2958	2097	1077	–	1323	647	815	142,5	95,7
1931.	2298	1829	1036	522	1282	621	761	133,0	93,3
1948.	2050	1417	850	436	1125	490	654	112,8	84,8
1953.	2044	2024	789	435	1129	477	618	119,8	106,2
1961.	2120	2105	760	405	1042	470	595	119,5	99,9
1971.	1815	1560	633	295	817	431	470	95,9	80,3
1981.	1698	1448	536	223	717	392	340	85,3	85,3
1991.	1584	1338	459	161	570	347	291	75,7	88,7
2002.	1340	1267	281	120	329	227	170	55,5	78,6

Source: A. Hegedіš, K. Čobanović, 1991, a Magquar Szent Korona orszaganik 1910, Evi 1912 Census results, Statistical Office of the Republic of Serbia

The decrease in the number of inhabitants is caused by three reasons: a) negative or passive population growth, b) village-town migration and c) leaving village in order to temporarily live and work abroad. Negative population growth is characteristic for five of these seven settlements, especially for those with the majority of Romanian population and which experienced this phenomenon as early in the 19th century and caused by, according to B. Bukurov, the wish to preserve the continuity of the household by having small number of children and by high mortality of female population (Bukurov, 1947).

In the last period between two censuses, 472 people moved primary either to Vršac or Pančevo: Veliko Središte – 105, Gudurica – 98, Jablanka – 81, Markovac – 73, Malo Središte – 65, Mesić – 32 and Sočica 18. Moreover, a number of farmers, trying to escape the rough conditions, left the village and went to live and work abroad. This group makes 16% of the total number of inhabitants. This number in other municipalities is 7% (Vojvodina 2.96%). This phenomenon is most expressed in Sočica (22.37%) and Markovac (18.2%), and least expressed in Veliko Središte (9.39%) and Gudurica (10.9%). It was noticed also that Romanian population showed the greatest tendency towards this kind of population movement. That is why there is an unfavourable presence of certain population categories that represent the criterion of its biological self-preservation and labour potential. The contingent of children up to 14 years of age represents 14.89% of the total number of inhabitants, which is below the level in the municipality itself (17.95%), and especially in Vojvodina (19.30%). Similar situation is when the young population is concerned (population between 15 and 27 years of age), where, with the percentage of 13.09%, the area is behindhand with the municipality for 3.44% and with the Province for 4.88%. The lowest percentage of the entire young population is in Sočica and Markovac and the highest in Veliko Središte and Gudurica. The worst condition is when labour capable population is concerned. It includes only 48.27% of the entire population while in the municipality it is 61.06% and in Vojvodina 63.99%. On the other hand, older than 65 years of age make 36.84% of the entire population while in comparative units that number is 11.69% and 11.30%.

Vital degradation of population has obviously taken a rather full swing. It will continue further, apart from others, due to a small number of female fertile contingents, which usually represents the factor of birth-rate. Its percentage is only 14.46% compared to 22.56% in the municipality and 24.42% in Vojvodina. Moreover, this number is smaller than in other settlements in the municipality (18.71%). This situation is, just as in other population structures, the most critical in Sočica (9.70%) and Malo Središte (10.36%). The best situation is in Gudurica - 20.33%. Although this group also includes female population born during the war when the depopulation was the most expressed, the increase of this contingent cannot be expected because the tendency of the decrease of population will inevitably cause its stagnation or fall.

The percentage of active population (43.38%) is higher than in the municipality (40.08%) and other rural settlements in the region (41.38%). This is the result of the small number of the youngest category and the fact that the old population takes part in agricultural works, thus declaring themselves as active population

although their activity is rather periodical and very often not necessary. The smallest percentage is in Markovac (28.31%) and Gudurica (35.79%) which both have the high percentage of the supported population (in Markovac that is the old population while in Gudurica that is the youngest population).

The share of agricultural population compared to the total number is 47.28% which approximately reflects the situation in all the villages in the municipality. However, the agricultural function of these villages is particularly noticeable in the high percentage of active agricultural population compared to the total active population (76.06% compared to 66.08% in all settlements). It is understandable that the greatest part of this category performs work in their own households (83.86%) and that is where the situation resembles the situation in those settlements outside the Mountain region.

The number of people with incomes (7.03%) is less than in the municipality (11.78%), which is understandable due to the presence of urban population but does not significantly differ from other villages (7.90%). This percentage is the highest in Veliko Središte (11.92%) and Gudurica (11.45%) and smallest in Sočica (2.06%). The first two settlements have traditionally large number of the employed population in Vršac which at the same time means that they have the larger number of the retired. On the other hand, Sočica has the most expressed agricultural function which enables the population make living from this activity up to the old age.

The analysis of the education shows that the majority of population only has primary education (45.56%) which resembles the situation in other settlements in the municipality. The second place belongs to the group of the population with secondary school education (35.46%). Even 10.26% of population did not finish any level of formal education. This is the population that is primary involved with agriculture. However, with finished secondary school (7.11%) these settlements fall behind with the others (11.64%). The population with some sort of higher education is the highest in Veliko Središte (1.57%) and Gudurica (1.23%) while in other settlements this number is negligible. The last two categories commute to Vršac and represent, according to the results of the poll, potential inhabitants of that town. Apart from Veliko Središte and Gudurica, settlements have four-year primary education organized in Romanian language. After the first four years, children continue education in their mother language in Vršac. Teaching is performed despite the drastic fall in the number of children. For example, Mesić had 36 pupils in 1970 while today there are only 9, Malo Središte had 20 and today 7 etc.

The national structure in the region is quite complex. Settlements showed the same character in the past as well. The majority represents Serbian population (42.05%). Serbian population represents majority in Gudurica (54.89%) and Veliko Središte (71.08%). The second place belongs to Romanian population with 34.98%. They represent the majority in smaller settlements – Jablanka (65.99%), Malo Središte (84.23%), Markovac (74.96%), Mesić (93.48%) and Sočica (96.18%). A rather small percentage belongs to Hungarians (5.87%), Macedonians (3.78%), Slovenians (1.1%), Croatians (1.30%) etc.

The beginnings of such complex ethnic structure ate back to the mid 18th century, in the time of the prosperity of viticulture, when Austrians colonized population from other parts of the Monarchy, Rhein region and Bavaria. This fact caused that just after the World War I, Germans represented the majority of population (43.50%). However, after the emigration of Germans, Veliko Središte and Gudurica were colonized by domestic population, which makes these settlements have the most complex ethnic structure. Romanians were most intensely colonized in the period 1641 and 1646. However, their number, due to already mentioned reasons, experiences constant decrease. For example, in 1869 there were 4.051, in 1948 – 2.073 and in 1981 only 1871 members of this national minority (Statistical annuals of the Republic of Serbia).

To conclude, Veliko Središte and Gudurica show the most favourable demographic structure. The greatest part of Veliko Središte territory is covered in plain and pedologically favourable terrain while at the same time the indicators showing the level of agricultural intensity are the best. On the other hand, Gudurica has the majority of colonized population. This population, although quite nationally heterogeneous, showed full compatibility with the new surrounding and expressed its aspiration towards healthy biological and economic self-preservation. The part of the population in this village overcame all unfavourable consequences of economic policies by finding employment in Vršac and yet, accustomed to life in similar environment, still continuing to live in the parent settlement.

Economic and geographical problems of settlements and revitalization possibilities

All indicators of the local people's field of work refer to agriculture. This is why the greatest attention is going to be paid to the problems of this kind of production. Agricultural areas on the territory of these settlements make 10086 ha, which is 18.65% of agricultural area in the municipality, or average 1715 ha per settlement. Yet, the size of agricultural area varies greatly – from 437 ha in Malo Središte,

to 3.831 ha in Veliko Središte. Arable areas make 6600 ha, which is 66.46% of agricultural areas. They are mainly in private property (83.32%), thus reflecting the general situation in the Province.

Table 2. Structure of agricultural areas according to the usage category presented in ha (situation in 2003)

Cadastral municipality	Arable land and gardens	Orchards	Vineyards	Meadows	Pastures	Total
V.Središte	3226	3	199	123	280	3831
Gudurica	737	48	610	60	250	1705
Jablanka	1211	2	8	93	204	1518
Markovac	194	1	23	81	148	447
Mesić	277	7	18	24	389	715
M.Središte	183	1	35	76	142	437
Sočica	772	9	59	18	415	1433
Total	6600	71	952	485	1828	10086

Source: Information from cadastral office on the structure of agricultural area in the settlements of Vršac Mountains, Vršac municipality

Agricultural areas of this region make 15.47% of municipal agricultural areas, while the whole area makes 19.64% municipality, which illustrates weak agricultural utilisation of the area. This is understandable, bearing in mind the mountainous character of the area, mainly covered in woods. The structure of agricultural areas shows a number of specific features compared to the plain area of the municipality. Thus arable areas make 59.21% (municipality 78.35% and Vojvodina 72.51%). This situation obviously reflects a poor arable orientation of the area. On the other hand, vineyards participate with 8.89% (municipality 3.06% and Vojvodina 0.65%). The fact that a great part is covered in vineyards is influenced by pedological and microclimatic factors as well as tradition. However, despite a considerable local appeal for viticulture and the possibility of producing quality, strong wines, these local advantages have been neglected by inadequate economic politics. In the like manner, compared to 1884 when viticulture was in full swing, these areas have so far been reduced by 67.20%.

Having in mind that yield of arable cultures in areas of former vineyards are poor and that capacity of wineries in Vršac go beyond raw material production of the gravitational area, it is necessary to benefit from these genuine advantages in order to revitalize economy. This would, by all means, contribute to improving unfavorable age structure of vine in these vineyards. The greatest problem is a slow payability of investment in viticulture. However, if it is analyzed in a long term, the area would establish its position in economic orientation and it would end drifting around a real economic strategy.

Apart from this it is necessary to say that meadows and pastures take up even 21.61% of the area (Vršac Municipality 3.05% and Vojvodina 0.65%). This fact shows a considerable potential of the area for the development of extensive-commercial cattle-breeding production. Yet, this advantage has been abandoned due to uneconomic, cyclic, and lately even long-term crisis in cattle-breeding, thus representing one of the major factors of stagnation and deterioration of the area. On the other hand, it has been realised that based on an estimated vegetation mass on pastures it is possible to raise approximately 16.000 cattle, having in mind that they are put to pasture from May till October. This would make an increase amounting to thirteen times more cattle than there is today. Apart from that, based on the agricultural structure of the area in borderline region of Romania (mostly meadows and pastures) and the fact that Vršac is the largest urban center in the entire region, it can be said that the existing potentials could be used for considerable improvement of slaughterhouse-processing industry in this town. Communicational conditions can be realised with minor investment, considering the previous existence of traffic arteries Varadia – Jablanka and Žamul Mere – Veliko Središte.

Table 3. Areas of different structures according to agricultural areas in %

Cadastral municipality	Arable land and gardens	Orchards	Vineyards	Meadows	Pastures
V.Središte	84,21	0,08	5,19	3,21	7,31
Gudurica	43,22	2,81	35.78	3,52	14,66
Jablanka	79,78	0,13	0,53	6,13	13,44
Markovac	41,30	0,21	7,98	17,20	31,89
Mesić	38,74	0,98	2,52	3,36	54,41
M.Središte	41,88	0,23	8,01	17,39	32,49
Sočica	53,87	0,63	4,12	1,26	28,96
Total	59,21	0,78	8,89	6,38	21,61

Source: Calculated according to the previous Table 2.

The above mentioned structure of agricultural areas reflects on a low percentage of intensive utilisation of agricultural area, at 67.58% (municipality 81.59%). The degree of intensity is lowest in the highest settlements, such as Mesić (42.25%) and Malo Središte (47.16%), being the largest areas covered in pastures where there is the greatest unused cattle breeding potential. Due to the relief character and microclimatic features, this region is characterised by a considerable percentage of area covered in woods, compared to the entire area of land (29.00%). It is the greatest in the area of Gudurica (55.96%) and Mesić (52.20%), and the least in Veliko Središte (5.18%). This fact was a reason why the local people of the highest settlements were mainly engaged in woodcutting business. This state of

woods is not only naturally predisposed, but also purposeful, since its function is to prevent denudation and river erosion. Participation of the private sector prevails and the specific character of the terrain causes a great fragmentation of property, i.e. a great number of smaller parcels, since most parameters have shown that the situation is the least favourable in this sector, while the empiric data prove that limiting factors of intensive production are more distinguished if the property is more fragmented.

Table 4. Number of parcels in agricultural areas according to utilisation categories presented in ha (situation in 2002)

Cadastral municipality	Arable land and gardens	Orchards	Vineyards	Meadows	Pastures	Total
V.Središte	4682	17	328	70	176	5278
Gudurica	2287	60	1495	103	289	4234
Jablanka	2073	10	35	258	40	2416
Markovac	689	13	134	133	30	999
Mesić	790	50	90	105	908	1944
M.Središte	699	12	136	137	31	1015
Sočica	2134	6	117	129	522	2908

Source: Calculated according to the previous table

An average size of agricultural parcels reflects a relatively distinguished terrain fragmentation compared to the other parts of the plain area, outside of Vršac Mountains. An average size of the entire parcel makes 0.53 ha. Inspection of certain categories of agricultural areas shows that the average largest size of a parcel is covered in pastures (2.55 ha), having in mind that they are mainly public property and that they make relatively vast continual areas because of the nature of their utilisation, especially in the area of Jablanka (5.10 ha), Malo Središte (4.80 ha), as well as Veliko Središte (1.59 ha). The smallest size is the parcel covered in orchards (0.43 ha), which is mostly the result of their maintenance in private plots and in houses for rest and relaxation (weekend houses). Other categories of agricultural land (arable land and gardens, meadows and vineyards) take up approximately over a half of hectare on average.

Based on the above given data, the area of Vršac Mountains is more diverse compared to the situation in Vojvodina. It is caused by its complex geological and morphological characteristics which have influenced other natural factors. Its consequence is a greater focus, after arable farming, on viticulture as well. Also, there is a considerable natural potential for development of certain branches of cattle breeding, yet, as it has already been mentioned, it is not properly utilized.

Table 5. Average size of agricultural parcels according to utilisation categories presented in ha (situation in 2002)

Cadastral municipality	Arable land and gardens	Orchards	Vineyards	Meadows	Pastures	Total
V.Središte	0,69	0,18	0,61	1,76	1,59	0,72
Gudurica	0,33	0,80	0,41	0,58	0,86	0,40
Jablanka	0,58	0,20	0,23	0,36	5,10	0,63
Markovac	0,28	0,08	0,17	0,61	4,80	0,42
Mesić	0,35	0,14	0,20	0,23	0,43	0,37
M.Središte	0,26	0,08	0,26	0,55	4,80	0,43
Sočica	0,36	1,50	0,50	0,14	0,80	0,49
Average	0,50	0,43	0,59	0,62	2,55	0,53

Source: Calculated according to the previous table

Factors of agricultural intensification

The important factor of the intensification process of agricultural production represents the level of the implementation of agro technical measures. We presented the usage of mechanization in the individual sector with a number of tractors per 100 ha. According to data from 2002, the number of 3.65 tractors per 100 ha is rather unfavorable compared to the average of Vršac municipality (9 tractors/100 ha) and Vojvodina (9 tractors/100 ha). Situation is the worst in Mesić (1.33 tractors/100 ha) and Veliko Središte (2 tractors/100 ha), while the best situation is in Malo Središte (6.95 tractors/100 ha). The most frequent owners of tractors are households whose members work temporarily abroad and who, no matter the often crises in our country, have enough amount of money to buy new mechanization. They cultivate land unsystematically and motivated not by income but only by inertia and their fields seem rather neglected.

Mountainous characteristics of this area, summer showers cause the appearance of surface and linear erosions on the slopes outside the forest belt. Erosion is the most intensive in the catchments basin of Malo Središte brook. It is presented in the form of denudation and linear erosion. Denudation is to be seen mostly on the slopes with greater energy while linear erosion is characteristic for more gentle sides. As the result there is an appearance of furrows and gullies. This form of linear erosive phenomena as well as brook beds become centers of flash floods when showers thus causing quite a damage to agricultural areas and most of the settlements of Vršac mountains. They require the building of landfill and consolidation barriers. The first one would have a task of water accumulation while the consolidation barriers should strengthen the bank. A new system of canals is being built, although not systematically, in order to direct water into the

canal network of Vršac trench for the purpose of directing and removing surface running waters. Moreover, it is necessary to reconstruct the existing canals since they are covered in thick bushes and plants and are full of waste disposal. In order to activate large neglected arable lands owned by old households and framers who work temporarily abroad, it is necessary to plough the fields on the bias with the slope. Furthermore, there is a need for fragmented foresting on those places where they would have a protective role from winds and water erosion. Other agrotechnical measures such as fertilizers, chemical substances used for plant protection, mechanization etc. are as well applied on arable lands.

Chemisation represents one of the most important factors of the intensification of agricultural production. The result of economic crisis, smaller economic power of farmers, and at the same time almost no investments in agricultural production, was the decrease in the usage if fertilizers (and other chemical substances), which in 195 was four times smaller than in 1991. With certain variations used not to be characteristic, the usage of fertilizers grows in the second half of the 1990s. However, that tendency does not represent a sufficient argument for the foreseeing of future movements.

Table 6. Index of the consumption of fertilizers in the area of Vršac Mountains

Year	Total	nitrogen	calium	complex and mixed
1991.	100	100	0	100
1993.	70	75	100	49
1995.	30	32	100	24
1997.	62	59	100	45
1998.	53	52	100	62
1999.	51	50	100	60
2000.	48	47	100	59
2001.	50	50	100	59
2003.	51	51	100	60

Source: Data obtained from Vršac municipality administartion, 2008

The process of the downfall of agricultural organizations, which much more applied the contemporary achievements of chemisation than private agricultural households, had a lot of effects on the level of the use of fertilizers. Public agricultural institutions as well Vršac municipality possess data on the usage of fertilizers as a rather important component of the intensification of plant production. These data are, due to dated official statistics, relatively old but still quite reliable when the comparison of the situation in Vojvodina and Vršac is in question.

The analysis of the next table shows us that, in the period between 1983 and 2002, the average usage both on arable areas (567 kg/ha) and plough fields (469 kg/ha) is well below the Vojvodinian average (567 kg/ha, i.e. 594 kg/ha). This condition, together with a rather poor quality of arable land in Vršac municipality, has quite a harmful influence upon the level of crops; the fact which will be documented, especially in the part dedicated to agricultural production.

Table 7. Usage of fertilizers per hectare of arable land in Vojvodina and Vršac municipality in the period between 1983 and 2000

Year	Arable areas		Plough fields	
	Vojvodina	Vršac municipality	Vojvodina	Vršac municipality
1983.	551	397	577	457
1984.	569	484	596	588
1985.	602	349	634	420
1990.	579	392	604	474
2000.	534	355	558	406

*S*ource: Statistical annual of the municipalities in Southern Banat, Department of Province Statistical Bureau, Pančevo

However, after the analyses of the conditions in seven rural settlements of Vršac Mountains, it is noticeable that the situation is much more unfavourable. The average level of the usage of fertilizers is here four times smaller than on the level of municipality and five times smaller than on the level of the Province and has experienced constant fall since 1984. Moreover, it was noticed that only one type of fertilizer is used, although the poor quality of soil and the specific conditions require much more complex treatment.

Tourism as a possible factor in the process of revitalization in the region of Vršac Mountains

Vršac Mountains, in the context of the plain area of Vojvodina, represent uncommon and attractive region favourable for the development of tourism. Vršac Mountains, with its height and forest complex, enable the development of tourism, from the point of hygienic and medical conditions, primary because of air circulation i.e. cleaner air when compared to plain areas of Vojvodina. The vicinity of city agglomeration, good distribution of relatively quality roads and accessible gradient give these Mountains recreational and functional tourist orientation. However, ecologically fertile localities have experienced firstly planned and later unplanned building of houses for rest and recreation thus giving the Mountains the character of secondary residence. Low price of land rent caused such objects

to be used for dwelling. However, according to the suggestions made by tourist and space planners, these areas need to be protected from such anarchy and provided with suitable quality contents. Moreover, a number of objects require reconstruction: Mesić monastery (16th century), neglected but renovated castles, wine cellars in Gudurica and Veliko Središte (18th and 19th century), refuge hut etc. Moreover, a lot should be done in order to conserve and use a number of ethnographic values that are especially well-preserved in those settlements with the majority of Romanian population.

Conclusion

On the base of the above mentioned it can be concluded that contemporary problems of borderline settlements in the region of Vršac Mountains are rather specific and quite complex. Nature, history and poor economic strategy influenced the appearance of degradation tendencies both from the demographic and economic-geographic aspect. With an aim to revitalize these settlements we suggest, apart from the other, the following interventions in the area of agriculture:

- It is necessary to provide unique elements of economic policy on a unique area of the Republic of Serbia and take advantage of neighbouring Romania being part of European Union.
- A problem of fragmented parcels and the process of commasation must be solved.
- Remove all the faults connected with production, manufacture, purchase of agricultural products etc.
- Cattle breeding must have a long-term development programme, economic stability, and market production.
- Take advantage of favours that almost all settlements, and especially Gudurica, Mesić and Malo Središte have for the introduction and development of rural tourism.

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GEOHERITAGE PROTECTION OF SERBIA – PRESENT SITUATION AND PERSPECTIVES

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Abstract: Neglected for decades in relation to the biodiversity and cultural heritage protection, the geoheritage protection has become a new concept, having more and more supporters in the world. The middle of the 1990s marked the beginning of the systematic geoheritage protection in Serbia. The basic components of that process are represented in the paper with the aim of evaluating the situation and noticing the key problems.

Key words: geoheritage, frames of protection, Serbia

Introduction

"*Geoheritage includes all geological, geo-morphological, pedologic and special archaeological values originated throughout the formation of the lithosphere, its morphological formation and interdependence of nature and human cultures which have to be a special concern of all social factors as the part of unique geo-heritage of Europe i.e. world due to extreme scientific and cultural significance*." (Declaration of the Conference "Geoheritage of Serbia", 1995)

The lithosphere of Serbia, the whole Balkan Peninsula more precisely, is the youngest part of the present Europe. From the time of its formation up to the present days, it has been followed by various geodynamic and paleogeographical events (formation and then disappearance of the Panonnian basin, formation of inter mountain depressions, raising of mountain ranges, etc.), as well as "distinctive magmatism, volcanism, sedimentation and accumulation of various residues of life", processes which enriched the lithosphere of Serbia by ore and energetic sources. Furthermore, the climate changes that occurred in the northern hemisphere (ice age and interglacial period), leaving vestiges in the nature of high mountains, indicated clearly the wealth of geodiversity represented by many different types of geoheritage sites (Pantić, Belij, Mijović, 1998). The geoheritage sites-different profiles, relief forms, artificial excavations of rocks during mining and other engineering works are crucial for understanding the Earth's geoheritage.

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Studying them, science has made some discoveries significant for the past, present but also future processes and phenomena i.e. it uses them to anticipate better some changes, perhaps some potential, natural hazards, too. Moreover, these "natural laboratories" and "museums in the open" serve for education of the young generations. Representing special polygons for training and education, they enable the demonstration of geological principles and illustration of the processes of relief evolution, while spreading the conscience on the necessity of the protection of the whole nature, they also have the role of educating population starting from the youngest one. Above all mentioned, these phenomena, processes and localities also contribute to the aesthetics of the regions.

The main criterion for selecting the geoheritage sites has not been the only one - whether on the basis of the same we can come to the information significant for identification and understanding the processes that occurred in the past. In dependence on the observer (an expert or amateur), often used criteria are rarity, i.e. uniqueness of the phenomenon, representativeness, complexity and others. There is a series of different valuable criteria, as well as large number of classifications which differ from country to country. The classifications serve for easier selection and protection of the geoheritage sites. The use of only one mutual concept for the geoheritage assessment started in the 1990s on the initiative of IUGS, UNESCO and IGCP (Mijović, Rundić, Milovanović, 2005), with the aim of standardizing, systematizing the geoheritage sites, as well as making the inventory in different countries. The Wimbledon classification was adopted in 1996 (Table 1) within the ProGEO organisation.

Table 1. Classification of geoheritage sites

A	Palaeobiological – macro and micro fauna, flora, vestiges, biochemical, stromatolite
B	Geomorphological –regions, caves, volcanoes, waterfalls, fjords, cirques, karst...
C	Palaeoecological – former climates, global sediment geology, fossil indicators
D	Magmatic, metamorphic and sediment petrological, textured and structural
E	Stratigraphical – events, sequences, stratotypes of upper boundaries, interval of stratotypes, biozones of type of sites of broader meaning, palaeomagnetic events...
F	Mineralogical
G	Structural – main tectonic or gravitational structures
H	Economic– of all types, intrusive, discharges, metallic and nonmetallic deposits, mines and quarries
I	Others – historical, for development of geological science

*S*ource: Wimbledon (1996)

According to different classifications of geological heritage used in European countries, D. Mijović (2002) singled out several mutual categories of geoheritage sites. These are: geological sites with scientific contents; geological sites with educative significance; geological sites with unique contents on the level of observation; geological sites with aesthetical values; and geological park. Mijović D. and Miljanović D. (1999) emphasized that it was of the greatest significance to make the difference between the sites of the first category (scientific significance) and the second one (educational significance), since the criteria of evaluation, as well as the very conception of the protection of geoheritage sites was depending on it (Table 2).

Table 2. Criteria for evaluation of scientific and educational values of geoheritage sites

Scientific criteria	Educational criteria
Site described as stratotype	Scientific significance
First discovery	Possibility of correlation
Site described as *locus tipicus* (flora, fauna – fossil)	Access to phenomenon
Site described as topotype or holotype (possibility of correlation)	
Site of specific sediment structure	
Site of specific tectonic structure	
Significant geomorphological site	
Remains of former mining	
Significance of pedological profile	
Site of special archaeological values	

Source: Mijović, Miljanović (1999)

The concept of the protection of geodiversity has been the newness in most countries. The nature conservation movement which was roused throughout the world at the beginning of the 19th century was primarily focused upon extraordinary regions full of geological attractions like Yellowstone (the first national park in the world in 1872) and Yosemite (protected area in 1864), while less on wildlife. The famous German naturalist, geographer and explorer Alexander von Humboldt (the second half of the 18th and the first half of the 19th century) was the first one who pointed to the necessity and significance of the protection of "natural monuments" as he called them, i.e. natural rarities for the scientific purposes. Marking the extraordinary phenomena as "curiosities" within the geosites, the most eminent names of our natural sciences dealt with them in the 19th century J. Žujović, J. Cvijić, V. Petković et al. (Đurović, Mijović, 2006).

The term "geological and geomorphological conservation" was common among the professional public up to 2000, while later the term geoconservation was accepted. When saying conservation, it is not only meant on protection, but also

adequate managing and using the natural resources. There is also a wider term "geodiversity conservation" or "conservation of the Earth's heritage" which includes not only the conservation of rocks, fossils, minerals, relief forms, but also the items in museums, structures, archives, maps and relevant data (www.geoconservation.com).

The systematic work on the protection of geoheritage in Serbia started in the middle of the 1990s by accessing the European Association for the Conservation of the Geological Heritage (ProGEO) and founding the National Council for the Geoheritage. The frameworks of the geoheritage protection, their functioning and current situation of the protection in Serbia are the basic subject research of the paper.

Geoheritage Protection

The lithosphere of Serbia, as the part of the Balkan Peninsula and the youngest part of the present Europe, keeps data on the climate, geodynamic, palaeogeographical and all other events from all epochs of the previous geological history (Pantić et al., 1998). That very fact is sufficient reason for the geoheritage protection. In the scientific-educational domain, those are also the specialist's education, education of young generations through the cognition and representation of this natural resource, while the economic significance is also important (resource, communal and tourist as the form of activity by which the cognition will be enabled, as well as protection, since the financial resources can be provided).

According to Dangić (1998), there are four phases in the process of the geoheritage protection:

- Identification - certain criteria should be ascertained firstly (representativeness, uniqueness of the phenomenon i.e. rarity, complexity, aesthetical experience, etc.). The selection of the criteria is the major and difficult task. The compatibility of the classifications depends on it. An inventory of the geoheritage sites has been carried out within the National Council for the Geoheritage of Serbia, as well as according to the Wimbledon classification. Owing to this project, around six hundred and fifty geoheritage sites have been selected in Serbia until today;
- Valorisation, i.e. establishing the significance of the sites within the ones similar to them. Within the national programmes of the valorisation, the categorisation of the sites has mainly been done according to the significance they have in the world, i.e. Europe, region, state or part of the state;

- Conservation/protection of the sites which can be in situ (in the original place) or ex situ (in the collection of some museum, institute, faculty, etc.). The natural and anthropogenic factors which influence negatively the natural heritage are various, and in dependence on the degree of endangerment, they are applied either as 1) only physical protection or 2) the combination of physical protection and conservation (2a-protection from adverse effect of natural geological-chemical factors; 2b-protection from adverse effect of anthropogenic-geochemical factors);
- Presentation in order to acquaint the public with all sites, it is necessary to represent them adequately. Dangić mentioned two basic ways of the presentation: 1) physical presentation (a-in situ, b-ex situ) and 2) presentation in publications and media (a-scientific: collection of papers, monographs, journals; b-popular: textbooks, media, etc.).

The necessary components of integral process of geoheritage protection are the following: legal, planned, institutional and educational.

Legislative Frame of Geoheritage Protection

Law on Nature Protection (2009) will advance the solving of issues of protection in general, as well as geodiversity i.e. geoheritage as its representative. It, among others, regulates the newness in regard of types and categories of protected natural resources. According to Law on Environment Protection from 1991 - Official Register of the Republic of Serbia No. 66/91 and Law on Environment Protection from 2004 - Official Register of the Republic of Serbia No. 135/04, six types of natural resources are selected: national park, nature park, region of extraordinary characteristics, nature reserve (general and special), natural monument and natural rarities. The Law was of special significance because the problem of protection was put on the level of systematic law for the first time, immediately behind the Constitution. Now, the following will be distinguished within protected natural resources:

- Protected areas and within them - strict nature reserve, special nature reserve, national park, natural monument, protected habitat, region of extraordinary characteristics, nature park;
- Protected species - strictly protected wild species, protected wild species;
- Protected movable natural documents (parts of geological and palaeontological heritage, as well as biological documents of extraordinary significance).

Introducing the category of protected movable natural documents will contribute for the first time to the concrete protection of the geoheritage sites because the Law regulates the conditions of their conservation, use, but it also brings the prohibitions and sanctions.

The geoheritage sites are most often protected in the legal category of natural monument. However, in dependence on dimensions and characteristics, they can also be protected in all other larger categories (Mijović, Miljanović, 1999).

All protected natural resources are entered in the register which is kept as central, provincial and register of protected movable natural documents. The Institute for Nature Conservation of Serbia is responsible for the central register; the Provincial Institute for Nature Conservation is responsible for the provincial register, while the Museum of Natural History is responsible for the register of protected natural documents.

Planned Frame of Geoheritage Protection

A planned frame of the protection of space is based on different kinds of plans - spatial, sector (agriculture, forestry, waterpower engineering, energetic sources, etc.), as well as the instruments for directing the development. The planned base of the protection of space in Serbia includes spatial-planned base, sector planned base and technical documentation. The spatial-planned base is realised on three levels of planning: national (Spatial Plan of the Republic of Serbia), regional (regional plans and spatial plans of the regions for special purposes) and local (urban plans). The most significant plans from the viewpoint of the protection of natural values, as well as the protection and reservation of space in general are the spatial plans of the regions for special purposes. They often belong to the regional level and ascertain the zones of different degrees of the protection, regimes of use and spatial organisation within the protected areas (Maksin-Mićić, 2000).

Spatial planners justify an adequate spatial-functional organisation, with the assistance of experts for nature conservation, which includes the zones of protection (Mijović, Miljanović, 1999). According to Law on Nature Protection (Official Register of the Republic of Serbia, no.36/09), there are four zones of the degree of protection, i.e. the following regimes of the protection:

- Ia degree - strict protection;
- Ib degree - strict protection with the possibility of managing the populations;

– II degree - active protection;
– III degree - active protection and the possibility of sustainable use.

Planning the nature conservation has been the integral part of the overall socio-economic and spatial planning, but at the same time specific and considerably autonomous (Lješević, Nikolić, 1991). The Spatial Plan of the Republic of Serbia is the systematic law and main strategic planned document of managing the space on which the planned nature conservation of Serbia is based. Since it offers guides and recommendations of the future protection as the strategic document (planned period up to 2010), it has not dealt with geoheritage protection directly but through the prism of overall nature protection, recommending for example the increase in the per cent of areas under protection (from the former 4.97% to the planned 10% of the state territory), the making of spatial plans of the areas for special purposes for protected areas with concrete regimes of protection, the prohibition or controlled use of resources, space and activities, the making of analyses of influence, but as such it provided the base for some concrete actions on the future nature protection, as well as geoheritage sites as one of its segments. In 2009, the Strategy of the Spatial Development of Serbia was adopted for the period up to 2020 with the strategic priorities up to 2013, representing the basis for the making of the future Spatial Plan of the Republic of Serbia. The geoheritage was not mentioned at all, but the care about this segment of nature could be seen through the defining of strategic priorities within the protection of the environment, regions, as well as cultural heritage (The Strategy of the Spatial Development of Serbia, 2009).

The draft of the Spatial Plan of the Republic of Serbia deals more concretely with the problem of geoheritage protection, not mentioning the concrete term geoheritage, but the terms as "valuable natural heritage" and "various and attractive regions". In chapter D.12 - Biodiversity, Protection and Sustainable Use of Natural, Cultural Heritage and Regions, it is emphasized that together with biodiversity and cultural heritage they represented "significant resource for the future spatial development of the Republic of Serbia." Apart from the principles of the sustainable use and decrees of international conventions and strategies, the Plan anticipates the making of national strategies, as well as a series of new laws, which, together with the formation of the National Ecological Net and identification of areas for the European ecological net NATURA 2000, will contribute to the aim of planned increase of 12% of the territory of the Republic in the total area under the protection of natural heritage (Draft of the Spatial Plan of the Republic of Serbia, 2010).

Institutional Frame of Geoheritage Protection

Experts from the field of geosciences (geologists, geomorphologists, geographers) rarely dealt with the protection of regions and sites in nature. The experts from various biological profiles have always overridden (Belij, 2007). That is probably one of the reasons for the "popularity" of biodiversity and significant increase of conscience on the necessity of its protection. The movement for geodiversity protection has become more active in the world. Geo-diversity was so much neglected that Sharples (Sharples, 2002) headed his book, in which he wrote about geoconservation in Tasmania, "Forgotten Half of Nature Protection".

The key year for arousal of conscience on the necessity of geodiversity protection was 1995. Serbia became the member of the European Association for Conservation of the Geological Heritage - ProGEO, when the work group for south-eastern Europe ProGEO-WG1 was formed in Sofia. In the same year, the National Council for the Geoheritage of Serbia was founded in Novi Sad, when the first conference on the geoheritage of Serbia was held (the second conference was held in June 2004). ProGEO is one of many organisations which deal with the issue of geoheritage. It was founded in 1988 in Sictuna, Sweden, and at the beginning of its work it was oriented exclusively to Western Europe. The basic aims of this organisation were to promote conservation of the wealthy European geoheritage, characterised in landscapes, rocks, fossils and mineral deposits; inform the broader public on the significance of their protection; give guides to institutions responsible for the protection of local, regional and European geoheritage; organise scientific, planning and managing researches; activate all European countries to exchange ideas, information and experiences in the protection; form the unique list of geoheritage and thus help the local organisations in the geoheritage protection; give the unique approach to the nature protection, using holistic approach in the protection of biological and physical phenomena. Moreover, ProGEO promotes the programme called GEOSITES (A Global Comparative Site Inventory), initiated in 1996 by the International Union of Geological Sciences (IUGS) with the aim of making balance between biological and geological conservation, through the identification of geological areas of the international significance and the making of inventory and database.

The expert institutions for geoheritage protection in Serbia are the Institute for Nature Conservation of Serbia and the Natural Museum of History. The Institute for Nature Conservation was founded in 1948 as the Institute for Conservation and Scientific Study of Natural Rarities of the National Republic of Serbia. It worked

on advancement and promotion of nature and its protection, as well as geoheritage as one of its segments. Owing to the Institute, 40 geosites were protected in the period from 1948 to 1975 (Nojković, Mijović, 1998), while nowadays the number has increased to 80 separate sites and many geoheritage sites are under the protection of some larger natural resources. The research work, professional supervision of natural resources and cooperation with managers and museum - natural activity, are some of activities that the researchers of the Institute deal with. Professional education is also given much importance. In the 1970s, the Institute began working on the permanent training of teachers and professors, organising specialized courses from the field of the nature and environment protection. Also, experts of the Institute gave their contribution by educating the population of naturally valuable and attractive regions about the significance of preservation (Simonov, 1998). The Institute is the organiser of various conferences, seminars, summer schools and camps. Its publishing activity is also developed (scientific journal "Nature Protection", monographs, maps, CDs and DVDs, etc.). Except mentioned activities that the Institute deals with, the initiating of the procedure of protection is probably the most significant activity. Experts from the Institute make the studies of protection in which, on the basis of gathered data in the terrain, they make the valorisation of the natural site suggested for the protection, establish the borders and suggest measures and regimes of the protection, as well as the very category of the protection. When the proposal for protection is submitted to the authority, the procedure of the protection is considered to be initiated. The authority is obliged to organise the public inspection and discussion about which it informs the public through at least one daily paper distributed in the territory of the whole Republic of Serbia, as well as through local paper of the unit territory on which the site is situated. The Government designates the areas of extreme, i.e. Republic significance as protected on the proposal of the Ministry that is responsible for the activities of the environment protection, while the local autonomy units designate other areas as protected in the territory of which the resources are located. The National Assembly passes a special law by which the national park is designated (Law on Nature Protection - Official Register of the Republic of Serbia, no. 36/09). The geoheritage sites are most often protected in the category of natural monument, but in dependence on the dimensions and characteristics they can be protected in all other larger categories (Mijović, Miljanović, 1999). The Natural Museum of History was founded in Belgrade in 1895 as the Jestastveničkі Museum of Serbia. The geoheritage sites are protected ex situ in the museum, in wealthy collections with several hundred of holotypes and unique mineralogical and petrological samples of extraordinary scientific

significance originated from the regions of Serbia and former Yugoslavia (www.nhmbeo.rs). The Museum carries out the whole process of geoheritage protection through gathering, studying, storing and presenting the sites. Except in the Natural Museum of History, the geological collections are also kept in the Faculty of Mining and Geology, the Institute of Geology of Serbia, as well as in the company "Nis - Naftagas".

Geographical Information System (GIS)

If one of the basic principles of GIS is applied, which is the accuracy of information, as well as the standardisation of its use is carried out in the local, national and international frames, the geographical information system becomes one of the irreplaceable tools for the contemporary management and geoheritage protection of the country (Jovanović *et al*., 1996). Some of the ways of using GIS in the process of geoheritage protection are the creation of data bases on geoheritage sites and their use for the purpose of spatial analyses. Besides using GIS for the scientific data base, one of its practical implementations in the process of geoheritage protection has been the use for the purposes of mapping geoheritage sites and making maps and diagrams. The last one in a series of workshops organised by the International Association of Geomorphologists (IAG), the work group Geomorphosites, was held in Lausanne in June 2008, having the mapping of geoheritage as the theme with the aim of developing the unique methodology along with the application of GIS and new information and communication techniques.

In 2003, on the initiative of B. Vasiljević and with the engagement of D. Štrbac and collaborators, the Institute for Nature Conservation of Serbia started the pilot-project of the Information System on the Protected Natural Resources, realized in GIS (Geo Media/INTERGRAPH). The Institute is responsible for the Register of Protected Natural Resources consisting of the main book (it includes registered papers, 12 columns with basic data on the resources) and collections of documents, while the Standard Register Scale regulates the obligation of conversing them in electronic form. The map of Serbia at scale of 1:1 000 000 is taken as the backing on which all natural resources that have been protected until then are located. Moreover, the data base was made (ACCESS base) in which alphanumerical and other data are entered for all resources. Nevertheless, the resources are grouped according to thematic wholes such as: natural regions, nature reserves, natural monuments - dendrological - botanical, natural monuments - geoheritage sites and cultural-historical regions. The areas less than 1 000 ha are represented by dots,

while larger ones by areals. The programme is useful primarily from the aspect of fast data obtaining on the resources by simple clicking the sign on the map with the possibility of asking questions and the representation of resources with all attributes in the map or table (Štrbac, 2004). The main point of the project, the use of which has never been realized, was education, as well as to acquaint the employed with the information system and converse all data on resources in digital form in order to be available for all and protected from decay. What is positive is that all errors can be noticed during data conversion into information system, as well as scanning and digitalisation. They have to be corrected and it must be defined which data are true, because data in the information system are declared to be the official ones. Nevertheless, the Institute got the information system on the protected natural resources several years later, which is just a segment of the business information system of the Institute, intended exclusively for internal use.

Education

Family rouses children's conscience on the connection between man and nature and the necessity of nature protection. This can be achieved in their earliest ages by prohibitions like "do not walk on the grass", "do not pick leaves", while various trips are also significant for children's acquaintance with nature and processes in it. Owing to subjects World around Us, Knowledge of Nature and Society in lower grades of elementary schools, as well as Biology, Geography, Physics and Chemistry in higher classes, school children are given better knowledge about the world which surrounds them. School children are also involved in various outdoor teaching activities such as the membership in the nature conservation club, scouts, mountaineers, which often influence the children's later choices and determinations (Đurđić, 2001). In 1998, the European Commission SOCRATES/ COMENIUS initiated the project called GRECEL with the aim of acquainting professors in high schools with geological sciences and geoheritage. Serbia did not participate in this project (Mijović, 2005).

Education does not only refer to educational institutions. Very important is the constant education of people employed in management of protected natural resources who influence directly the preservation and conservation of these regions. Parallel with the involvement of educated and trained volunteers, the visitors should also be educated, not only by talk, but corresponding propaganda-distribution of published material, putting up posters and placing billboards and notice boards (Đurđić, 2001). Experts in different geoprofiles have also been educated. The first seminar, intended for associates of the Institute for Nature Conservation of Serbia,

was held on Mountain Tara in 2004 under the title "Seminar on Geodiversity and Geoheritage in Nature Protection". It was also the first training course on the geoheritage in Serbia (Mijović, 2005). The last activity in a series of similar ones is Geotrip 2007 which was oriented to loess and gathered domestic experts from different geo-disciplines.

Media and Public Relations

The beginning of 1990s marked the decrease in the number of television broadcasts and newspaper articles devoted to ecological problem in general. There is current information, but it is mainly passed through the columns about health, economy or politics (Iljenko, 1998). Đavolja Varoš is obvious example of the significance and influence of the media. The interest for this geosite suddenly increased in 2009. The motive was the internet voting on the global level for seven natural wonders of the world. As soon as it leaked out that our candidate was highly ranked, the media started giving daily information, and even the trustee of this natural site, which was protected in 1959, announced an open competition for the ideological solution to souvenir. This action initiated the selection of seven wonders of Serbia, which was justified in such a way that readers sent suggestions and explanations, which resulted in special issue "Seven Wonders of Serbia", popularizing thus natural attractions and rousing people's consciousness about the necessity of the protection.

Conclusion

There are many factors which endanger geoheritage sites, influencing negatively the geodiversity. Except the main threats to the preservation of geodiversity wealth (erosion, waste disposal, exploitation of mineral sources and stones, agriculture, urbanisation, other changes in the land use, exaggerated spreading of vegetation, tourist and recreation pressures, collections, climate changes and changes of the sea level), some situations also represent obstacles to the protection and conservation of geoheritage, e.g. when the property in which the locality is situated has several owners, as well as when the locality, i.e. site is insufficiently explored. Therefore it is important to deal with all segments of the protection - legislative, planned, institutional and educational.

The first and basic step towards the overall protection of the geoheritage of Serbia is the making of the inventory of sites, having in mind that it is not the same as the cadastre of their widespread. Moreover, it is necessary to solve the problems of legislation. Large problem is to preserve the valuable areas and sites when the

obligation of their entering into deed books does not exist. Such areas have rarely been the state property, so it usually comes to the conflict of interests and disregard of issued limitations of use (Vider, Stević, 2009). All mentioned has been the part of the necessary concept of active managing. In contrast to the previous passive form of the protection (identification, assessment, administrative protection), the active managing means the making and realization of the managing programme, the monitoring, skilled and educated managers, the coordination between different spheres of interest (geomanagement), following the world trends in the field of the geoheritage protection (the foundation of geoparks as the part of the concept of the sustainable (geotourism), as well as adequate promotion and presentation.

The precondition of all is the financial support which is mainly missing in Serbia. But this has also been contributed by managers who do not treat the natural resources as the potential resource which will provide means necessary for its own maintenance and advancement (Puzović, 2009).

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ASSESSEMENT OF THE MINING PRACTICES EFFECTS ON THE WATER QUALITY IN THE IBAR RIVER WITHIN THE LEPOSAVIĆ MUNICIPALITY

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Abstract: Exploitation, development and primary extraction of the minerals result in release of the harmful substances, e.g. heavy metals, toxic gases, dirt, etc, that are often uncontrolled deposit in the environment. Those deposited and overlooked substances remain as a heritage and challenge for the coming generations that would involve abundant human, technical and financial resources for the environmental reclamation. The mining activities of the Trepča – RIF Kopaonik has both positive and negative influences within the Leposavić municipality, i.e., industrial development and environmental degradation. As a result of the mining activities the air, land and water resources both surface and underground are severely polluted. The main objective of this paper is to present adverse effects of the mineral resources (lead and zinc) exploitation and primary extraction on the Ibar River water quality degradation mainly by heavy metals. Since the heavy metals are frequently ingested by the people through the food chain and given the high toxicity of them they are crucial parameters for the water quality monitoring practices that should be carefully assessed and controlled. Thus this paper includes comprehensive analyses of the heavy metals concentration (Pb, Zn, Cu, Cd and Fe) in the Ibar River within the Leposavić municipality

Keywords: Lead and zinc extraction, flotation, mine water pollution, flotation separation landfill, water, heavy metals

Introduction

Leposavić municipality is located on the northern part of the Autonomous Province of the Kosovo and Metohija (Republic of Serbia) within the narrow corridor in the Ibar valley between Kosovska Mitrovica and Raška district, and it is bounded by the municipalities of Raška, Kuršumlija, Zvečan, Kosovska Mitrovica and Podujevo. The total area of the municipality is 530 km^2, with 14.503 inhabitants. The administrative centre of the municipality is Leposavić, with 5957 inhabitants, which is located 35 km north of the Kosovska Mitrovica within Ibar valley.

Elevation of the town is between 445 and 500 m a.s.l. In the Leposavić municipality lead and zinc deposits are located within the Rogozna and Kopaonik mineral deposits with major deposits locations: Belo Brdo, Crnac, Koporić, Žuta

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Prlina and Jelakce. In 1999 the exploitation of the mineral resources has been terminated. At this moment, the mining activities exist in Belo Brdo and Crnac and transported from there to Leposavić for flotation. The pulp of the flotation is deposited in the flotation landfill which is located close to the town of Leposavić on the left bank of the Ibar near by the riverbed.

For the comprehensive analyses of the Ibar River pollution by the heavy metals this paper evaluates main characteristics of the industrial polluters, namely mining practices within the company Trepča – RIF Kopaonik. The water quality monitoring has been done at 3 locations: Leposavić – entrance (LS), Leposavić – exit (LN) and Tvrđanski potok. The main water quality parameters and heavy metals i.e. Pb, Zn, Cu, Cd and Fe concentrations were quantified.

Cadastre of polluters

There are many companies in the Leposavić municipality (Table 1) that are releasing harmful substances during their industrial practices. Those substances have adverse effects on the water quality in the Ibar (Milentijević, 2005 b).

Table 1. Cadastre of the surface water industrial polluters within the Leposavić municipality

No	Polluter title	Polluter Characteristics	Remarks	Discharge Location
1.	Timber industry Hrast, Leposavić	Complex chemical pollution by ants' acid, lacquer.	Temporary pollution	Ibar River
2.	Glass Industry Kristal, Leposavić	Complex chemical pollution Hydrofluoric acid	Temporary pollution	Ibar River
3.	Mining waste water Pit: Jakce	Complex chemical pollution by heavy metals	Permanent pollution	Dobravska River
4.	Mining waste water Pit: Žuta Prlina	Complex chemical pollution by heavy metals	Permanent pollution	Leposavska River
5.	Mining waste water Pit Koporić	Complex chemical pollution by heavy metals	Permanent pollution	Leposavska River
6.	Leposavić flotation	Complex chemical pollution by heavy metals	Plant works Temporary	Tvrđanska River
7.	Flotation landfill Tvrđanski Do	Complex chemical pollution by heavy metals	Permanent pollution	Ibar River
8.	Flotation landfill Bostanište	Complex chemical pollution	Permanent pollution	Ibar River
9.	Mining waste water pit Crnac – adit Gnježdane	Complex chemical pollution by heavy metals	Permanent pollution	Jošanička River
10.	Mining waste water Pit: Belo Brdo	Complex chemical pollution by heavy metals	Permanent pollution	Drenska River

Source: Milentijević, 2005b

Short description of Trepča – RIF Kopaonik pits that have adverse effects on the Ibar water quality are presented in the succeeding paragraphs.

Lead and Zinc pits: Belo Brdo, Žuta Prlina, Koporić i Crnac

Mining pits Belo Brdo, Žuta Prlina, Koporić are located on the south slopes of mountain Kopaonik while the pit Crnac is situated on the eastern slopes of mountain Rogozna. Chemical composition of the ores for these 4 deposits is shown in Table 2.

Table 2. Lead and Zinc deposits chemical composition for pits Belo Brdo, Žuta Prlina, Koporić and Crnac

Chemical composition	Žuta Prlina	Belo Brdo	Crnac	Koporić
Pb - total (%)	3,64	4,01	4,01	1,71
Pb – oxides (%)	0,25	0,27	0,26	0,33
Zn - total (%)	2,52	3,94	1,95	0,50
Zn - oxides (%)	0,26	0,20	0,25	0,15
Fe - total (%)	14,00	19,45	11,30	12,20
S (%)	16,10	21,00	13,54	2,12
As (%)	0,36	1,18	0,28	0,32
Cu (%)	0,03	0,10	0,02	0,07
SiO_2 (%)	29,48	19,58	31,55	45,45
Al_2O_3 (%)	2,74	4,31	9,20	7,32
MgO (%)	3,90	1,20	2,86	6,28
CaO (%)	0,018	5,72	7,48	2,11
Ag (g/t)	43,00	62,00	46,00	23,00

Source: Milentijević *et al*., 2009

Ores from all before mentioned pits have significant portion of the silver (30 - 80 gr/t), that increase their economical value.

Based on the minerals analyses the main minerals in the individual pits are (Milentijević *et al.*, 2009):

- Žuta Prlina - pyrite, sphalerite, galenite as a primary minerals, and smithsonite and cerussite as secondary minerals;
- Belo Brdo - pyrite, pyrhotine, sphalerite (marmatite), galenite and arsenopyrite as primary minerals;
- Crnac - pyrite, sphalerite and galenite as primary minerals;
- Koporić - galenite, sphalerite, pyrite and marcasite as a primary minerals while limonite, cerussite, anglesite and smithsonite are secondary minerals.

The presence of the other ores chalcopyrite, cubanite, jamesonite and tetrehedrite is insignificant. It is noteworthy to mention significant deposits of quartz, dolomite and siderite. The highest economical values have galenite, sphalerite and pyrite. Minerals processing is in Leposavić flotation plant before this plant was built minerals had been processed in flotation plant RMHK Trepča – Zvečan.

Mining Waters

It was detected on field that from the before mentioned mineral deposits due to mining activities significant amount of water occurs. Those waters drain to the surrounding terrain and discharge into the clear mountain rivers, tributaries of the Ibar.

Within the area of the pit Crnac fissure- permeable aquifer exists. Adit Gnježdane drains all waters from the pit from the present and former mining activities. The estimated quantity of the water ranging from 8 l/s (minimum) to 30 l/s (maximum). Measured water is temperature is 16^0C, pH is 8 (Milentijević, 2005a), and heavy metal concentrations are: Cu - 0,06mg/l, Fe - 13,8mg/l, Pb - 0,99mg/l, Cd - 0,0036mg/l and Zn - 1,4mg/l. Finally, detected sulphate concentration is 321, 3 mg/l (Milentijević *et al*., 2009). Mining waters directly discharge in to the Jošanička River, left tributary of the Ibar.

Within the area of the Jelakce, from fissure- permeable aquifer through the cracks, fissures, faults and fault zones water amount of more than 50 l/s discharges uncontrolled. Measured water is temperature is 14^0C, pH (Milentijević, 2005a) is 6, and heavy metal concentrations are: Cu - 0,01mg/l, Fe - 4,0mg/l, Pb - 0,03mg/l, Cd - 0,003mg/l and Zn - 1,6mg/l (Milentijević *et al*., 2009). As a final point determined sulphate concentration is 63, 4 mg/l. Mining waters discharges directly into Dobrovska River, right tributary of the Ibar River.

Within the area of the pit Žuta Prlina, fissure- permeable aquifer drains water from the deposits through the cracks, fissures, faults and faults zones. Mining waters enter in the level entry, galleries and appears on the adit and finally drains directly to Leposavska River, right tributary of Ibar. Quantity of the water is approximately 21 l/s with temperature of 10^0C and pH = 6, 9 (Milentijević, 2005a). Measured heavy metals concentrations are: Cu - 0,01mg/l, Fe - 10,4mg/l, Pb - 0,03mg/l, Cd - 0,0044mg/l and Zn - 10mg/l and sulphate concentration is 298, 2 mg/l (Milentijević *et al*., 2009).

Within the area of the open-pit surface mine Koporić during the exploration period (before 1999) excavated ore was transported by the system of ore chute and adit. The length of the adit is 1000 m and central ore cute is 100 m high. At the moment central ore cute is filled. Due to that an artificial lake has been formed in the open-pit surface mine Koporić. The lake waters occur at the adit Water temperature is 8^0C, pH is 7, 4 (Milentijević, 2005a) and measured water quantity that drains through ore chute is approximately 20 l/s. Heavy metal concentrations are: Cu - 0, 03mg/l, Fe - 3,1mg/l, Pb - 0,03mg/l, Cd - 0,003mg/l and Zn - 0,11mg/l. Lastly, sulphate concentration is 124,8 mg/l (Milentijević *et al*., 2009). Mining waters drains to the Koporićka River that discharges into the Leposavska River, the right tributary of the Ibar River.

Within the area of the pit Belo Brdo, mining waters are moving through gravitational channel, occur at the adit and drain directly to the Drenska River the right tributary of the Ibar. Measured water quantity is 116 l/s, temperature is 14^0C and pH = 7, 4 (Milentijević, 2005a). Determined heavy metal concentrations are: Cu - 0, 03mg/l, Fe - 3,1mg/l, Pb - 0,03mg/l, Cd - 0,003mg/l and Zn - 0,69mg/l. Finally, sulphate concentration is 288, 51 mg/l (Milentijević *et al*., 2009).

Figure 1. Photo of the waters discharge from
the pit Žuta Prlina into the river (Milentijević, 2005a)

The characteristics of the sulphide deposits mining waters are the high sulphate concentration, low pH (acid water) and high concentration of the heavy metals (Dragišić, 2005). Results of the mining waste water research for pits Crnac, Jelakce, Žuta Prlina, Koporić and Belo Brdo in generally indicate high concentrations of the heavy metals and sulphate, while pH values are not low.

Leposavić Flotation plant

Leposavić flotation plant has operated since 1972 with designed capacity of 400,000 t ore per year. Excavated ore is transported from the pits to the flotation plant by tracks. Flotation discharge is conveyed by the centrifugal pump to the hydrocyclon at the flotation landfill. Hydrocyclon sand is used for a dike build at the flotation landfill while the discharge is gravitationally sent to a lake for sedimentation. Liquid substance drains to the Ibar River through the system of manholes and collectors (Nedeljković *et al*., 2007a).

Leposavić Flotation Landfill

Flotation Landfill Tvrđanski Do (Figures 2 and 3) is located east of the highway Kraljevo – Kosovska Mitrovica, close to the town of Leposavić at the Ibar right river bank. This landfill has been used for dispose of the pulp from the flotation plant where the ore from the mining pits: Crnac, Jelakce, Žuta Prlina, Koporić and Belo Brdo was processed. The total area of the landfill is about 7 ha and approximately 2.600.000 t of pulp is disposed there. Based on the pulp analyses lead concentration ranging from 0,26 % to 0,32% is noticed, of which 0,18% lead oxide, pyrite 19,27%, pyrrhotite 10,025% and Zinc from 0,16 to 0,23% (Milentijević, 2005a).

Figure 2. Photo of Tvrđanski Do flotation landfill (Nedeljković *et al.*, 2007b)

Dam includes several steep slopes, and the steepest one is the eastern part of the dam which descends to the railways just before the tunnel entrance at the northern side of the dam. Western side is shorter with evident erosion processes. The pulp moves down to the foot of the slope where tree allay exists near by the Ibar. Given that landfill recultivation has not completely finished during the windy events a certain amount of the dust from the landfill spreads over the Leposavić

and puts town in risk of the pollution. Sunken water from the landfill is conveyed by the collector to the Ibar River. Pulp surface is read and oxidized. On the dam perimeters even hard parts are visible. Since the increase in dam elevation was not feasible disposal of the pulp stopped and new flotation landfill Bostanište has been built (Nedeljković *et al*., 2007a).

Figure 3. Photo of arsenic - trioxide at the flotation landfill Tvrđanski (Milentijević, 2005a)

Landfill Bostanište (Figure 4) is located south of the landfill Tvrđanski Do, where the northern dam perimeter leans on the end of the western part of the old dam. The major part of the landfill is bordering with the Ibar River, i.e. approximately 1 km and has natural limits by the hill on the eastern side. Landfill is characterized by the relatively steep dam slopes on the northern and western sides with surface partly covered by sand and the rest is covered by oxidized pulp with deep erosion canals drills. Landfill recultivation has not been done so there are no plants or grass on the surface.

Figure 4. Photo of Bostanište flotation landfill dam (Milentijević, 2005a)

As a result, during the windy events the dust from the landfill is spread around and presents potential risk for the town of Leposavić and surrounding villages. The border between dam foot and the Ibar is scant tree alley with bushes around. Along the steep slopes of the dam drills are visible as a result of the erosion. Drainage of the precipitation is by the drainage pipe network that conveys water to the collector which is located on the perimeter of the stockpile. Based on the chemical analyses of the flotation landfill Bostanište the chemical composition of the pulp has been detected as follows: Zr - 107,7 ppm, Sr-121,7 ppm, Rb - 71,8ppm, Pb - 2136 ppm, As - 3566 ppm, Zn - 1948 ppm, Cu - 117,3, Ni - 115,78 ppm, Fe - 107587,2 ppm, Mn - 8321,47 ppm, Cr - 341,93 ppm (Nedeljković *et al.*, 2007b).

Ibar River water quality

During the year of 2007 from January till December monitoring program for water quality was completed on the following locations: Leposavić -entrance, before flotation landfill Bostanište (LS), Leposavić - exit, after flotation landfill Bostanište (LN) and Tvrđanski potok (flotation). Water samples have been collected monthly and concentrations of the following heavy metals were assessed: Cu, Fe, Pb, Cd and Zn and concentration of the basic parameters for water quality evaluation: pH, sediments, dissolved maters, total solids, SO_4 and Ca (Nedeljković *et al.*, 2007b). Chemical analyses have been completed for all monitoring locations and results are exhibited in Figures 5 to 15.

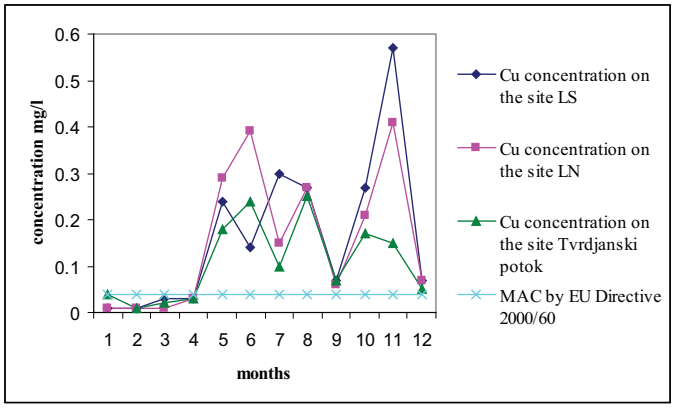

Figure 5. Cu concentration in the Ibar River - 2007

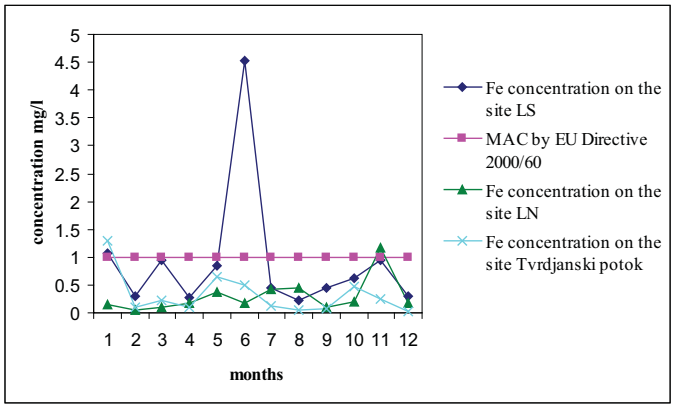

Figure 6. Fe concentration in the Ibar River - 2007

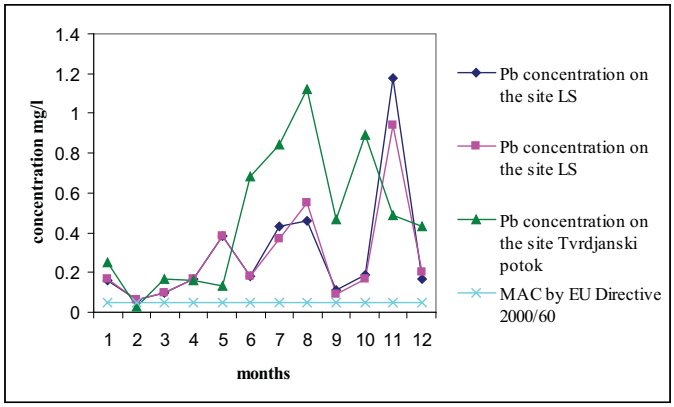

Figure 7. Pb concentration in the Ibar River - 2007

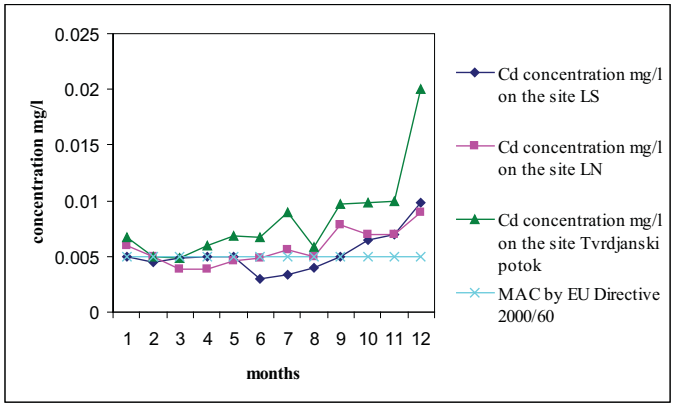

Figure 8. Cd concentration in the Ibar River - 2007

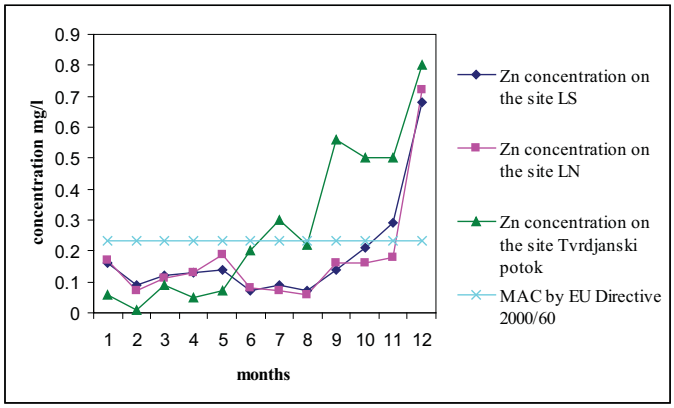

Figure 9. Zn concentration in the Ibar River - 2007

Figures 5, 6, 7, 8 and 9 display monitored values for heavy metals, namely Cu (mg/l), Fe (mg/l), Pb (mg/l), Cd (mg/l) and Zn (mg/l). Given that it has been concluded that these values are mainly above benchmarks proposed by the EU Directive 2000/60, based on UNECE, 1996 Guidelines on Water-Quality Monitoring and Assessment of Transboundary Rivers, and Pb values are persistently above MAC during the year.

Quantities for the basic water quality parameters pH, sediments (mg/l), dissolved mater (mg/l), total solids (mg/l), SO_4 (mg/l) and Ca (mg/l) are analyzed in accordance with the MACs based on JUS, while Ca concentration is compared with EU Directive water quality standards 2000/60. The results are presented graphically on Figures from 10 to 15.

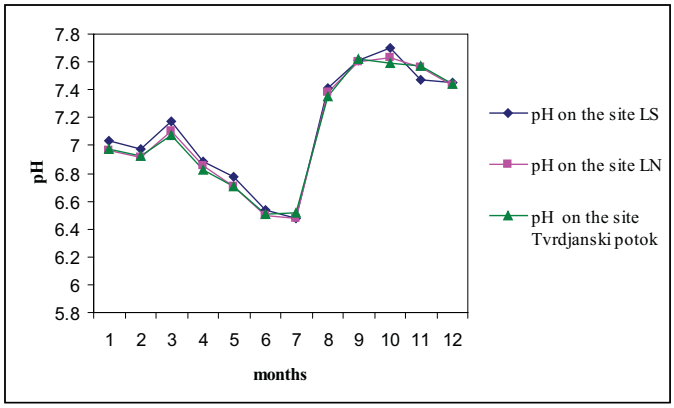

Figure 10. pH concentration in the Ibar River - 2007

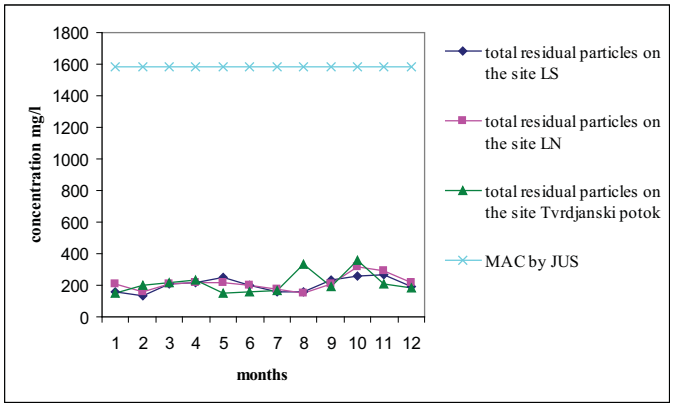

Figure 11. Sediment concentration in the Ibar River - 2007

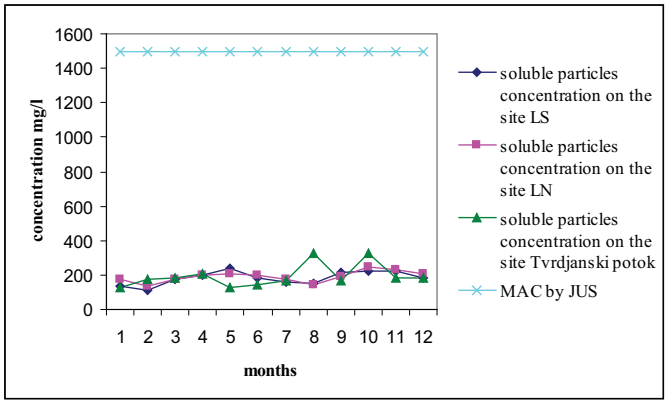

Figure 12. Dissolved matters concentration in the Ibar River - 2007

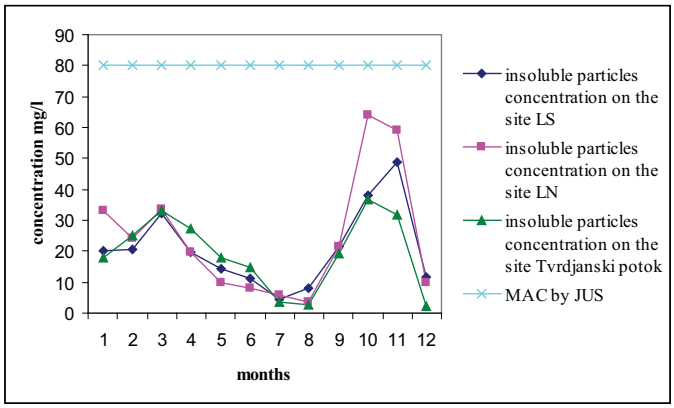

Figure 13. Total Solids concentration in the Ibar River -2007

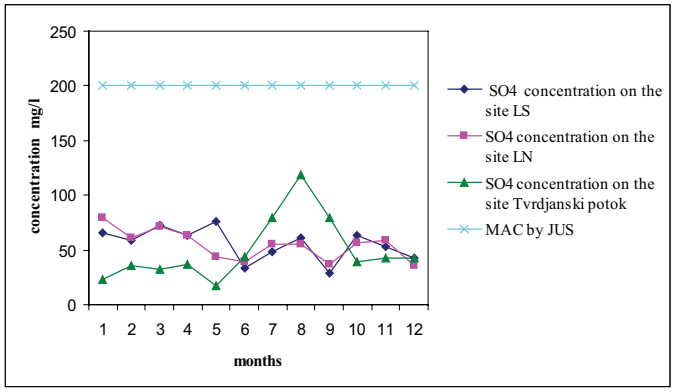

Figure 14. SO4 concentration in tthe Ibar River - 2007

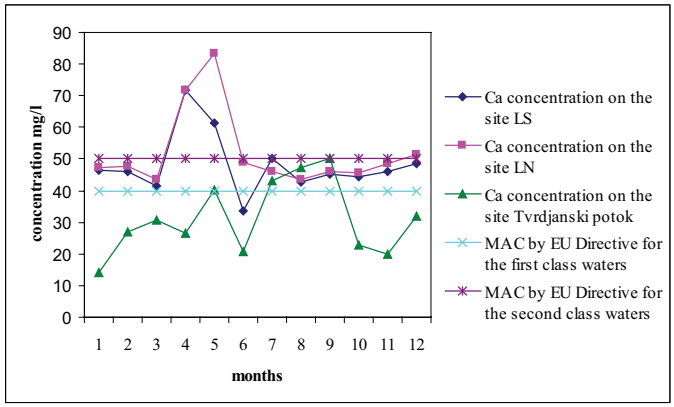

Figure 15. Ca concentration in the Ibar River - 2007

Based on assessment of the results for the basic water quality parameters and their comparison with JUS proposed benchmarks it can be concluded that concentrations are in line with MACs.

The analyses of the measurements emphasized necessity for the comparison with the EU standards for water quality since there is a tendency among the countries that have a goal to join EU to implement EU Directive and to modify of polices and regulation according to EU practices and regulations. Environmental Quality Standards (EQS) presented in Annex II EU Directive 2000/60 are stands for total concentration in water sample. For heavy metals concentration, EQS are related to the dissolved mater concentration, e.g., dissolved mater extracted by filtration.

EQS values for the heavy metals are associated with water hardness that is expressed based on the calcium concentration. Based on the EU Directive, Annex III there are five water hardness categories: (Category 1: <40 mg CaCO3/l, Category 2: 40 to <50 mg CaCO3/l, Category 3: 50 to <100 mg CaCO3/l, Category 4: 100 to <200 mg CaCO3/l and Category 5: ≥200 mg CaCO3/l). Given above categorization, Ibar River waters within the municipality of Leposavić can be in generally classified as II category. Hence, the quality standards for surface water category II have been applied.

Measured results for heavy metals: Cu, Fe, Pb and Zn in Ibar River, are unfavorable since almost all results are above EQS benchmarks. Sources of heavy metals pollution in the municipality of Leposavić are diverse. In this paper only a few of them have been introduced: lead and zinc mines, mining waste waters, flotation landfills, flotation plants, etc. Many rivers that have immense heavy metals concentrations are not exposed to waste waters from the mining industry. Many heavy metals could be detected in water due to the various circumstances and there are many different locations of the heavy metals discharge into the water bodies (Minić *et al.,* 2008).

Given the field observations, it can be concluded that flotation landfills Tvrđanski Do and Bostanište are the primary polluters of the Ibar River within the study area, namely, municipality of Leposavić. Before mentioned landfills are polluting water in many ways:

- By uncontrolled disposal of the pulp or during the accidental situations they cause both physical and chemical pollutions. Additionally they have adverse effects on the Ibar River water quality, flora and fauna within Ibar watershed.
- Through ground waters, water solutions that are generally saturated with heavy metals discharge into the river. There is real possibility of accidental situations occurrence due to severe flooding and improper landfill management. Those accidents can result in total destruction of the flora and fauna, risk for settlements and facilities downstream of the flotation landfills and permanent heavy metal contamination of the land and aquifers.
- Spreading of the dust particles by the winds and their deposition within the river bed and their flush from the soil surface. Geographical location of the town of Leposavić (North -South) and dominant air circulation pattern (North - South) makes the landfills the main polluter of the environment. These landfills are very harmful for the town and surrounding villages

especially during the windy days with main direction from the north which spreads huge amount of dust with gases, particularly sulphide dioxide, and immense amount of the specific metals (Pb, Zn, Cd) that are deposited in the human settlements, plants, animal and human bodies.

Given these conclusions the development of the appropriate environmental protection practices for the Ibar River watershed has started. To accomplish that comprehensive literature review was included. Based on the study (Dudka, Adriano, 1997) which correlate to our the results presented in this paper, it can be concluded that emission of the Pb, Zn, Cd and Cu have more adverse effects to the water resources than to the land. Comprehensive analyses of the possible industrial waste waters fitoremmedy and recultivation practices for the land contaminated by the heavy metals based on the best management practices Galiulin *et al.*, 2001) have been performed. Based on all activities for the protection of the Ibar River watershed the technical and biological recultivation of the flotation landfill is recommended.

Leposavić flotation landfills recultivation

To decrease the movement of the particles from the flotation landfills to the surrounding environment the biological recultivation of the landfill is recommended. At present, recultivation is possible for the flotation landfill Tvrđanski Do, since there is no more disposal of the pulp. During the years 2006 and 2007 for the implementation of the project: "Influence of the mining practices during the exploitation lead-zinc ore on the environment, geological characteristics and general health conditions within the Province Kosovo and Metohija registration *14026G",*the high rise plants had been planted especially acacia (*Robinia pseudoacacia*), pine (*Pinus nigra*) and grass. The lead concentrations have been monitored on pine trees (*Pinus nigra*) and on the acacia leaves (*Robinie pseudoacaci*e). Results had shown that acacia had developed better than pine in the areas of the flotation landfills (Nedeljković *et al.*, 2007b).

Conclusions

Results introduce concentration of the some heavy metals that are above proposed benchmarks at the monitoring locations in the Ibar River within the municipality of Leposavić. The main polluters of the Ibar River watershed are flotation plants, flotation landfills and mining waste waters. As primary polluters flotation landfills Bostanište and Tvrđanski Do have been recognized, and recultivation practices have been recommended where it is feasible. The future research should be focused

on the finding solutions for appropriate monitoring, conservation and increase of the water quality in the Ibar River.

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INFLUENCE OF SALT PRODUCTION ON DEVELOPMENT OF INDUSTRY IN THE TUZLA VALLEY

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Abstract: This paper analyses influence of salt production on development of industry in the Tuzla valley. Industry is the most developed economic activity in the Tuzla valley, which employs the highest number of workers and has influenced for the most part on development of the region. In the Tuzla valley, two major mineral deposits of rock salt have been discovered and researched to date. The first deposit of salt water and rock salt was found in the centre of Tuzla, and the other was found on the slopes of Majevica Mountain (Tetima). For such a complex development in the Tuzla valley were considered the elements of social, economic and physiognomic nature that were special and significant for the transformation, respectively for changes of the space, with its orientation of spatial development of economic activities, social and technical infrastructure.

Key words: Natural-geographic conditions, industrial salt production, the Tuzla valley, work force and economic development.

Introduction

This paper analyses influence of salt production on development of industry in the Tuzla valley. Natural-geographic conditions enabled a very fast economic development of the Tuzla valley. Also, rich salt deposits conditioned a rapid development of industry and settlements. Industrial salt production started in Salt Factory in the settlement of Simin Han, in the Tuzla valley, in 1885. It worked on principle of boiling of salt water in the salt pans which were heated on fire. Annual salt production in that period was 4.500 tons. Due to increased application of salt in chemical industry, a new salt factory, which produced annually 5.000 tons of edible salt, was constructed in Kreka in 1891. Reserves of salt in deposit of the salt mine "Tušanj" were estimated at about 4.5 million of tons and about 1.5 million of tons in salt wells. In a new salt deposit of Tetima, reserves of rock salt wee estimated at about 336 million of tons (Buljugić, Fejzić, 1985).

Today, industry of Tuzla is spreading towards the western part of the Tuzla valley and along the salt and coal deposits. At the end of 1989, reserves of salt in a deposit

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of the salt mine "Tušanj" were estimated at about 4.5 million of tons and about 1.5 million of tons in salt wells. In a new salt deposit of Tetima, the reserves of rock salt were estimated at about 336 million of tons. Along with the town sprawl, the industry and other activities developed rapidly, thus increasing the land value in vicinity of the industrial zone and in the centre of town as well. Nowadays, the central part of the Tuzla town occupies 5.026 hectares or 16.6% of total area of the municipality. This land became one of the highest values in the Tuzla valley, as the biggest industrial firms and housing structures were constructed on it. The land value becomes higher and higher in suburban settlements along the traffic routes in the Tuzla valley (Jovanović, 1987).

Industrial salt production in the Salt factory in Tuzla

Industrial salt production covers the period since 1918, when construction of the first more significant industrial firms started. It was during the Austrian-Hungarian monarchy, at the end of 19th century, when industrialization in the area of the Tuzla valley started. Economic and cultural progress has started rapidly owing to the capitalist mode of production in the state, which had a strong economic, military and technical organisation (Nurković, 2001). Most of the facilities had predominantly manufacturing and artisan significance. In the Tuzla valley, the first industrial salt factory was opened in Simin Han, which was put into operation on 25th March 1885. In the first year of the work, the salt factory produced about 2.000 tons of rock salt, and only a few years later, production of rock salt was 5.000 tons. According to previous research of quality and quantity of deposits of rock salt in the Tuzla valley, the Austrian-Hungarian government decided to construct a new salt factory in settlement of Kreka, in 1886. The Salt factory in Kreka was put into operation in 1891 and had two production boilers. It was more modern than the salt factory in the settlement of Simin Han and produced significantly more salt per boiler. The annual salt production was about 2.000 tons. However, in the same year, facility for production of the briquetted salt for human food and animal feed was opened. In the period from 1884 to 1918, 507 workers were employed in the salt factory (Vujović, Stojković, 1985).

Important precondition of the first industrialization and the capitalist economy in the Tuzla valley was a construction of road network (railways and roads). The first rail track was constructed in direction Tuzla-Doboj, in 1886, at length of 57 km (Klapić, 2000). Establishment of Rock Salt Mine in Tušanj, as well as establishment of the Soda Factory in Lukavac, in 1893, was important for establishment and development of the salt factory in Simin Han. Most of the industrial firms, such as the Salt Factory and the Soda factory, were connected with deposits of rock salt,

coal, wood and a favourable communication in the Tuzla valley. Development of industrial firms was based on existing natural resources, which may be ascertained also for other industrial branches, whose programmes of development are related to that period, respectively those branches that were founded by the first industrialisation. Industry in the Tuzla valley was predominantly processing. The industrial facilities were distant and poorly connected. The Salt Factory and the Soda factory in the Tuzla valley in this period were raised with Austro-Hungarian capital (Vrišer, 1980).

Economic development in the Tuzla valley entirely changed after 1919. During the Kingdom of Yugoslavia, the mode of salt industrial production in Kreka changed, as well as the market. Domestic capital gained higher importance as there were no major foreign investments, and with such "nationalization of industry" foreign capital was partially reduced, which impeded domestic entrepreneurs (Veljković, 1980). Along with development of new industrial firms a number of workers in the Salt factory, who represented decisive factor in social-economic development of the Tuzla valley, also increased. According to Statistical yearbook from 1920, there were 18 industrial firms with 4.229 of employees in the Tuzla valley, in 1940. The highest number of the employed people was in mines 2.675 or 63.2%, respectively, followed by the Soda factory with 642 or 15.1%, respectively, in the Salt factory 618 or 14.6%, and in other minor facilities 70 or 1.6%, respectively (Klemenčič, 1980).

In the period from 1930 to 1945, the number of industrial workers in the Tuzla valley increased to 5.675. Contrary to slow development of industry, in general, in this period of the industrialisation a rapid increase in population in the Tuzla valley was evident. Slow economic and industrial development reflects also in a slow change of economic structure of population. In 1931, there were 83% of agricultural population in the area of the Tuzla valley, while in 1910 that percentage was 87%. This means that both the Tuzla valley and the whole Bosnia and Herzegovina met World War II with about 4/5 of agricultural population, having all characteristics of an agricultural area, with a low productivity and a low consumption, as main characteristics of economy and society of the time.

Since 1956, a technological process of the salt production has been continually modernized. The existing factory was rexonstructed by "Energoinvest" Sarajevo in 1968, and with this the planned production increased from 75.000 to 185.000 tons of salt annually. The technological process of salt production in Salt Factory in Tuzla, has been developing in three phases. From the salt water, which is carried by pipes to the factory from the salt wells, firstly all scale settling particles must be

removed by special evaporators. After filtering the purified salt, water gases and gaseous oxygen are removed. This procedure is called degassing. The degassed salt water is carried to pre-heaters where it is heated up to a certain temperature. The heated salt water is transported into the first evaporator where it is kept until the beginning of salt crystallization. After that, it overflows into the second and third evaporator. By passing through evaporators, the salt water se steamed for five times, so that every hour 10 tons of table salt is produced (Vujović, Stojković, 1985).

The Salt Factory started creating a wide network of its sales and service outlets across the entire area of ex SFRJ during 1970s (Feletar 1986, 85-97). For less than five years of work in a new salt factory in Tuzla (1970-1974), the planned production of 185.000 tons of salt was achieved, while in 1982, maximum production was 194.000 tons, which represented increase in salt production by 5%. In the Salt factory, a wide assortment of products was achieved until 1984: table salt, industrial salt, road salt for ice melting, salt for leather industry, small-grained salt, pharmaceutical salt, tablet salt, salt for methane explosives, salt as an agent for water softening, cream soups, beef concentrates and detergent for washing hands (Table 1).

Table 1. Production of single products in the Salt Mine of Tuzla, 1999-2003

Type of Product	Units of measurement	1999.	2000.	2001.	2002.	2003.
Salt	t	45.670	64.780	64.980	71.190	76.000
Spices	t	50	170	200	210	230
Olba	t	4	7	8	8	10
Distilled water	t	11.000	19.000	22.000	23.000	25.000
Cream soup	kg	1.000	1.900	1.900	2.000	2.000
Soups	kg	1.900	2.300	2.500	3.000	3.100
Beef Concentrate	kg	13.400	11.800	14.100	14.300	14.500

Source: The Archives of the Salt Factory Tuzla ("Solana" dd Tuzla), 2005

The increased production of the products based on salt, as well as the work force related to it, required opening of new industrial facilities in that period. Therefore, in vicinity of the Salt factory "Tuzla", two new industrial facilities: "Dita" for production of detergents, and "Polihem" for production of petrochemical products, were established. In the Salt Factory of Tuzla, in 1985, over 400 million of the then dinars were invested into investment works and construction of new industrial facilities. In that period the first phase of reconstruction of the facilities was finished by installing a new evaporator for salt production. Reconstruction of other key facilities of the production programme for obtaining new types of salt

has been designed. Until 1991, the Salt Factory Tuzla covered the market of ex Yugoslavia with 80% of table salt. In 1991, 208.000 tons of salt were produced for the needs of ex Yugoslavia market. Number of employed workers in the Salt Factory was permanently changing until 1991. In the period from 1992 to 1999, number of employees in the Salt Factory reduced to 1.854, and production of all types of salt dropped to about 21.000 tons (Table 2, Figures 1 and 2).

Table 2. Production of rock salt in the Salt Mine "Tušanj", 1967-2000

Year	Production in tons	Year	Production in tons
1967.	20.356	1992.	31.910
1970.	85.287	1993.	2.950
1971.	85.531	1994.	2.064
1975.	78.466	1995.	6.069
1980.	92.422	1996.	11.414
1981.	113.579	1997.	17.197
1985.	149.457	1998.	20.238
1990.	99.747	1999.	32.000
1991.	140.766	2000.	32.646

Source: Archives of the Personnel Department of the Salt Works from Kreka, 1967-2000

Today, the supply of the produced salt from the Salt Factory Tuzla on domestic and foreign market is reduced due to higher and higher competition between the Romanian, Polish, Austrian Russian, Mediterranean and other salts, whose prices are lower than of the Tuzla salt.

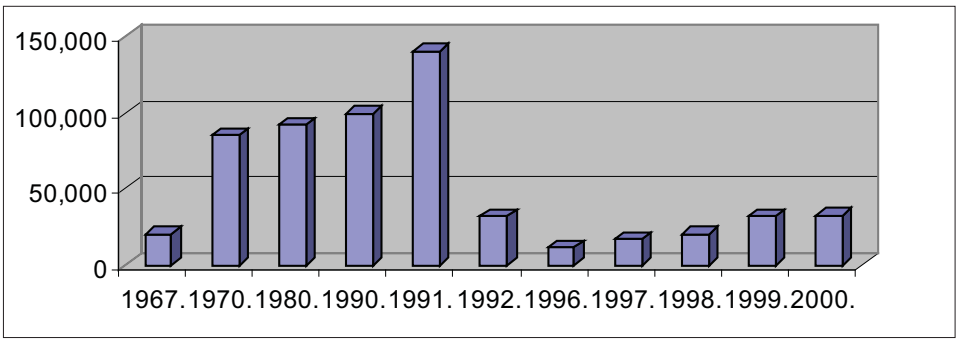


Figure 1. Production of rock salt in Salt Mine "Tušanj", 1967-2000

Actual conditions for production and sales are very unfavourable for the Salt Factory. Production costs of the salt water itself are very high, and the unfavourable qualification structure of the employees cannot introduce the latest technology into business operations, which is required by modern salt industry.

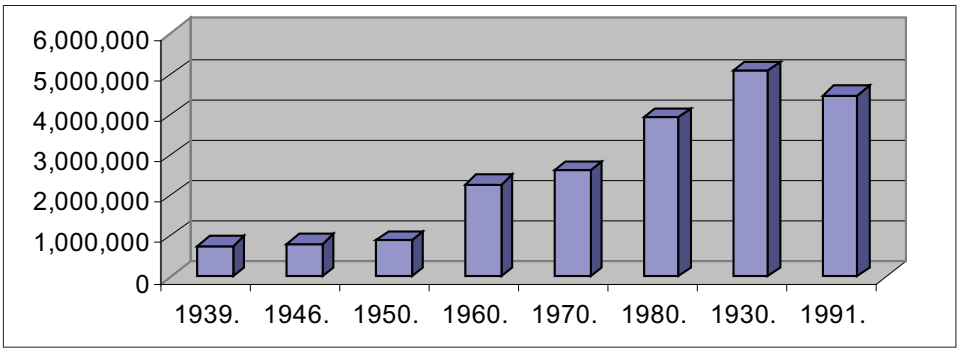
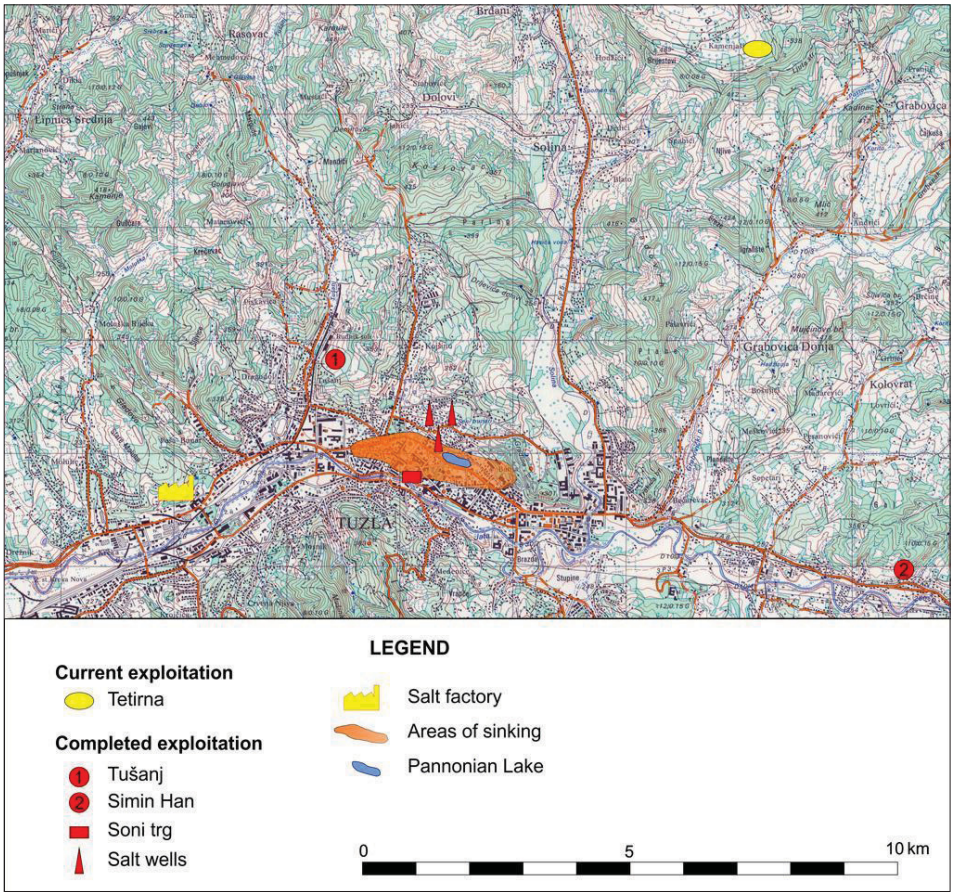


Figure 2. Production of salt water in Salt Mine "Tušanj" (in m³), 1939-1991
Source: Statistical yearbook SODASO Tuzla 2001 and documentation of Salt Mine 'Tušanj'

Spatial distribution of the Salt factory in Tuzla

After World War II, industry in the Tuzla valley developed on the locations, which had already been marked by the pre-war industrialisation (Slavec, 1991). Industrial firms expanded spatially by occupying larger and larger areas. On the old locations, new industrial firms also started to open (e.g. at Šićki Brod) The industry of Tuzla valley is rather unevenly distributed in space. On the one hand, there is a strong concentration of the industrial jobs in Tuzla, and, on the other hand, there are almost quite unindustrialized areas. The Salt factory Tuzla is located in the settlement of Kreka, in vicinity of the Power Plant "Tuzla", from where it is supplied with electric energy. It is also located near the sources of salt water Hukalo and Trnovac and in vicinity of the River Jala and the Salt Mine "Tetima" (Map 1). The new Salt Factory in Tuzla had nine facilities for production of salt and covered the area of 10 hectares. In the past twenty years none of the new settlements in Tuzla has obtained an industrial firm. The local development policy obviously gave the priority to construction of tertiary activities in the municipality of Tuzla, which was caused by extremely uneven social-economic development.



Map 1. Geographic distribution of salt deposits and the Salt Factory in the Tuzla valley, 2008
Author: Rahman Nurković

Qualification structure of work force

Education is the so-called "human capital" and the most significant characteristic of the contemporary work force. General and expert knowledge represent the basic qualitative features, without which a modern industrial production cannot be imagined. It itself requires a higher general education of workers which enables more successful professional mobility and flexibility (Lorber, 2003). That need is a result of industrial development, technological progress, introduction of new technologies into production and more explosive spread of knowledge. Professional education, which along with the training in a work place forms a qualification structure, is important for productivity of the work force. With overall economic development in the Tuzla valley, education of workers in industrial firms has improved as

well. Younger new workers were more educated than those already working. The qualification structure improves owing to employment of new workers. We have followed the qualification structure of industrial work force in industrial firms and facilities of the Tuzla valley at different levels (Pak, 1980). By analysing the qualification structure of the employed people in the Salt factory Tuzla in 2008, the highest numbers of employed workers were skilled workers, 172 or 31.9% of all employees, respectively. These are followed by secondary school background: 150 or 27.8%, respectively, then the high qualified workers 93 or 17.3%, university qualification with 45 employees or 8.3%, lower educational background with 39 workers or 7.2%, semi-skilled workers 21 or 3.9%, and two-year post-secondary school qualification with 17 workers or 3.2%, respectively (Table 3).

Table 3. Qualification structure and number of employed workers at the Salt Tuzla, 2008

School background (total)	University qualification	Two-year post-secondary school qualification	Sec. school background	High qualified workers	Skilled	Semi-skilled	Unskilled
537	45	17	150	93	172	21	39
100%	8,3%	3,2%	27,8%	17,3%	31,9%	3,9%	7,2%

Source: The archives of the Salt Factory Tuzla, 2008

Despite great efforts of educational policy, which tended toward the forming of skilled work force with a network of primary and secondary schools, the Salt Factory in the Tuzla valley still has an unfavourable qualification structure. This is caused, first of all, by relatively young industrialization which relied on cheap and unskilled work force. On the other hand, it is a consequence of specific branch structure with predominance of industry with a great share of the unskilled work force (mines and chemical industry). Finally, we mustn't forget the social status of workers in the Tuzla valley. A large number of employed workers come from suburban areas and, in addition to work in the factory, work additionally on their land. Due to everyday commuting to work and working on the land, the workers were overloaded and have not expressed a particular willingness for additional education. There are also important differences in qualification structure of employed people in other industrial branches of the Tuzla valley.

Conclusion

In the first part of the paper, general and historical conditions of influence of the salt production on development of industry in the Tuzla valley were elaborated. Rich deposits of salt, which conditioned a strong development of industry and the settlements, were also presented. It was during the Austro-Hungarian monarchy, at the end of 19th century, when industrialisation in the area of the Tuzla valley

started. Economic and cultural progress started rapidly owing to the capitalist state, which had a strong economic, military and technical organisation. Most of the facilities had predominantly a manufacturing and artisan importance. Basic data and periods of historic development of the Salt Factory in the Tuzla valley were mentioned herewith. Industrialisation in the Tuzla valley also influenced the distribution of population and population development. Industrialisation relied on agricultural population, as well as on utilisation of cheap, unskilled work force. This is why a question of development of other activities, not only the industry, was raised. At last, under influence of industrialisation in the Tuzla valley, spreading of central settlements, erasing the boundaries between urban and rural settlements, intensive development of traffic and electrical network, as well as improvement of living conditions occurred.

After 1991, economic importance of industry in the Tuzla valley also started weakening within the overall industry of Bosnia and Herzegovina. In the area of sales of its products in ex Yugoslavia, the Salt Factory and the chemical- industrial complex of the Tuzla valley cooperated with almost 5.000 clients (the most significant production and transport organisations from all larger towns). With dissolution of the state, the loss of the market and a break of business connections with clients followed. From 1992 to 1995, due to war in Bosnia and Herzegovina, a complete stoppage of production in the Soda Factory occurred, as well as in the Coke-chemical combine, which sold 75% of its products in the pre-war period out of the domestic market, mostly in Slovenia and Serbia.

It may be concluded that in the Tuzla valley we have negative forms of industry crisis. A significant factor, which influenced the appearance of crisis in facilities of the Salt factory, was aging of industrial firms. Even 55% of all industrial facilities were founded before1950. Today, the offer of the produced salt from the Salt Factory Tuzla on domestic and foreign market is reduced due to increased competition between the Romanian, Polish, Austrian, Russian, Mediterranean and other salts whose prices are lower than of the Tuzla salt. Actual conditions of the production and sales are very unfavourable for the Salt Factory Tuzla. Production costs of the salt water itself are very high, and an unfavourable qualification structure of the employed workers is not able to apply the latest technology in business operations, which is required by modern salt production. The situation gets even worse from year to year and threatens to acquire elements of general endangerment of living, particularly in the central settlements of the Tuzla valley.

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ASSESSMENT OF FORMS AND EXTENT OF TOURISM WEB PROMOTION IN SERBIA

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Abstract: The subject of this paper is Web promotion of tourism in Serbia. Promotion was understood as one of the four basic elements of marketing on the Web. The paper analyses the main forms and the extent of use of Web tourism promotion. The focus is on domain characteristics, quality of presentation, visibility and search engine rank, Internet promotion techniques and number of visitors. Structural observation was the main method used to analyze 260 travel and tourism related websites in Serbia. However, as Serbia is in the process of political and economic transition, it is still characterized by insufficient technical development of the Internet and its low level of utilization by the tourism industry. Based on the obtained results the extent of use of Web tourism promotion in Serbia and its forms were assessed.

Key words: web promotion, tourism, Serbia.

Introduction

The subject of this paper is the web promotion of travel and tourism in Serbia. The promotion was understood as one of the four basic elements of the marketing mix (product, price, promotion and place) on the Web. The web promotion, as the basic component of Internet marketing, can be understood as organized business activity, which aims to promote company, product or idea over the Internet (Stankov, 2009). Having just a website, does not necessary mean that a company uses the web promotion (Roldan, 2004). The existence of a website is just a starting point for the use of the Internet marketing (Sweeney, 2008). A website cannot be fully functional without the use of the Internet promotional techniques. The most important Internet promotional techniques in tourism industry are search marketing, Internet advertising, online PR and e-mail marketing (Bickart, Schindler, 2001; Chaffey, 2003; Krstić 2003; Manolis, 2005; Sweeney, 2005).

From the beginning of the Web, tourism industry embraced the new technology. (Stankov, 2007). The relationship between tourism and Internet is obvious. Travel agencies on the Web can show images of almost every destination in the world to

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potential customers. In the same way, hotels can show images of rooms, dishes in restaurants or answer to costumer's questions (Ćurčić, 2006). In 1996, 50% of the all-global Internet transactions were travel and tourism related (Niininen, *et al.*, 2006). In Europe, online travel sales reached 49.4 billion Euros (Marcussen, 2008). The scope of the global Internet market is immense. Great possibilities for sending, transferring information and constantly growing number of Internet users, create marketing segments for almost every type of business (Ćurčić, 2007).

During fast development of the Internet in developed countries, Serbia was facing terrible economic and political situation, which caused a delay in the adoption of the information and communication technologies. In 2007, the Internet penetration rate was 22.7% of the total population. This rate is two time smaller than European average (48.1%) and tree time smaller than EU average (59.9%). In the region, only Bosnia and Herzegovina and Albania have lower Internet penetration rate (Stankov, 2009). From 1996, despite negative characteristics of the Internet development in Serbia, the number of the Internet users was constantly growing. In 2007, that number was estimated to 1.700.000 (Stankov, 2009). Still, development potential of the Internet is huge. Serbia will very soon reach the level of the development in the neighbouring countries. Tourism is important part of the Internet in Serbia. In 2006, travel and tourism were among top searches, besides music, computer, science and education (Beogradska otvorena škola, 2006).

Within this context, the main purpose of the paper is the assessment of basic forms and extent of use of the web promotion of tourism in Serbia. The focus of this paper is on domain characteristics, quality of presentation, visibility and search engine rank, Internet promotion techniques and the number of users. The structural observation was the main method used to analyze travel and tourism websites.

Methodology

The structural observation is a systematic method that researcher use to generate numerical data based on the observation of expected situations (Cohen, 2007).

Based on the researches of Baloglua and Pekcan (2006) and Hashim, et al. (2007), the author defined element of structural observation and the expected situation. The study included 260 of the travel and tourism website in Serbia. The term travel and tourism website was understood as a website of a domestic travel and tourism company and organization. The structural observation included following groups of websites: travel agencies, accommodation facilities, travel and tourism organizations, transport companies and tourism portals.

Table 1. Categories, elements and expected situations of structural observation of travel and tourism websites

Categories and elements	Expected situations
1. Domain name	
a. Adequacy of a domain name	Adequate / Inadequate
b. Adequacy of TLD	Adequate / Inadequate
*c. Existence of country code (yu or rs)**	Exist / Does not exist
2. The year of website foundation	Year
3. Website type	Static / Dynamic
4. Website credibility and functionality	
a. Website owner	Exists / Does not exist
b. Copyright and data citation	Exists / Does not exist
c. Update	Exiss / Does not exist
5. Quality of content presentation	
a. Navigation	
• *Manu bar on all website pages*	Exist / Does not exist
• *Functionality of the navigation*	Good / Bad
• *Quick search*	Good / Bad
• *Site map*	Exist / Does not exist
b. Color contrast	Good / Bad
c. Foreign language availability	Full / Partial
6. Visibility and search engine rank (Google, Yahoo, Pogodak Krstarica)	Exist / Does not exist / Rank
7. Internet promotional techniques	
a. Links	Exist / Does not exist/ Number
b. Links' structure	Travel and tourism sector, Non-tourism sector
c. Banners	Exist / Does not exist / Number
8. Online PR (news section, chat, forum, online poll)	Exist / Does not exist
9. Elements of the e-mail marketing	Exist / Does not exist
10. Rank – by the number of visitors and county of origin	Rank, Country

* During the research there were process of changing of the national domain from yu to rs

The authors used "way-back machine" available at the website Internet Archive (http://www.archive.org) to determine the year of a website foundation. The year of the oldest recorded data on the website was identified as the year of website foundation.

The visibility and the position on search engine are determined using simple search on global search engines *Google* and *Yahoo*, and on two domestic search engines Pogodak and Krstarica. Google and Yahoo are the most used search engines in the world (Laycock, 2007). The keywords for search engines in the

selected group of websites were based on the names of travel agencies, hotels and transport companies. This way of keyword selection is based on the research made by Schegga *et al*. (2005). In the case of well-known company names, the company location was added. The existence of the website URL among the top 10 results was considered as the existence of the visibility for the concrete search engine.

The position of URL among top 10 results indicated the rank of a website for a search engine. The average rank for each group of websites was based on the average of all positions.

Alexa Web service was used to determinate the number of unique visitors and visitors' country. The most visited website is ranked with number 1 (Alexa – The Web Information Company, 2008). In addition to ranking according to the number of visits, the authors determined the percentage ratio of visitors by the countries from which they accessed the domestic travel and tourism websites.

Domain name features

The complete URL address of a website, including the domain name, can be sort of an advertising panel. The Internet users will more often choose URL that makes sense and that carries a message, than those that are not associated with the subject of a website (Kostić, 2003).

When it comes to companies (including companies from the travel and tourism industry), an adequate domain would consist of a company name and a term that closely describes the main company activity (tourism, travel, tours, etc.). The additional terms may be omitted if a company has the brand that contain words closely describing companies' activities (for example www.yugotours.co.rs) or when it comes to companies with famous brands and long tradition (for example, www.jolly.rs). Recognizing mentioned criteria, authors came to result that 78.1% of tourist websites have an adequate domain name. An inadequate domain name have 21.9% of websites.

An important factor that determines the adequacy of the domain is TLD or Top Level Domain. The domain names can be grouped by various criteria. The simplest is grouping domain names into two basic types: CONE (Com., Org., Net., Edu) and CC (Country code) (Ratkaj, 2002). Country code is important for several reasons. The large number of CONE TLDs is taken, unlike the country codes. State labels in TLD provide a regional website credibility and higher degree of

user personalization. Within the tourism sector, country codes confirm to visitors the country identity. In the middle of 90s, almost all countries in the world had their own county code, even those with limited access to the Internet, (Yu, 2003). The study found that 68% of travel and tourism websites have country code in their TLDs.

Basic website features

The research included the year of foundation of a website, website type, credibility and update information. The first websites related to tourism subjects appeared in 1998. Until, 2001, constant growth of new tourism websites was noticed. In the next two years slower growth was noticed, but in 2004, growth continued (36 new websites appeared). Then there was slower growth in the next two years. The expansion started in 2007, and compared to 2006 (32 new websites), the number of new websites was doubled (Figure 1).

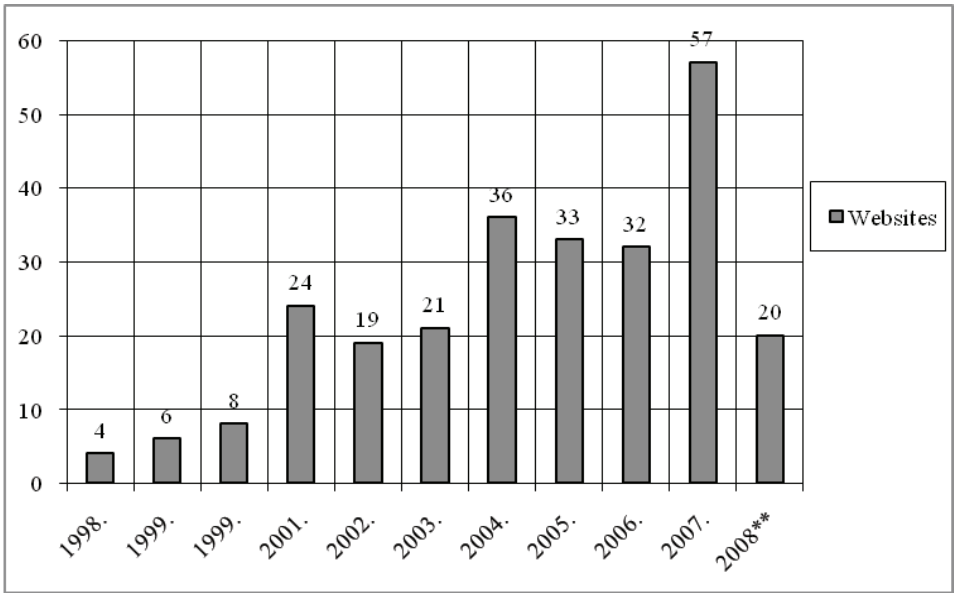

Figure 1. The number of new travel and tourism websites from 1998 to 2008
** In 2008, research period was ended in October 18.

The basic characteristic, important for every website user is its functionality. Two basic types are dynamic and static websites. For the tourism sector, it is of great importance that websites have dynamic characteristics, which provides them

greater opportunities of two-way communication and creating new services. The results show that 63.1% of travel and tourism websites are static, and 36.9% are dynamic. Given the above importance of dynamic websites for the promotion, it is argued that the situation in this area is unsatisfactory. The reasons of such bad situations are lower costs of creation and running static websites, lack of educated stuff, and low understanding and interest for promotional potential of dynamic websites.

The research also included basic parameters of website credibility: website owner, copyright, data sources and update information.The existence of the information on the website owner is crucial for the determination of website credibility. The information about a website owner is important for the commercial websites. In travel industry, on the supply side, there are a large number of heterogeneous businesses and it is important to know who is offering the service. Apart the information about the owner, copyright is also important.

The research showed that 90.8% of travel and tourism websites provide information about the owner. Although it seems most convincing, the only acceptable result has to be that all travel and tourism websites have this information. This means that information about the owner should be required element of every website. The optional opportunity to provide information on copyrights used 77.7% of websites.

To maintain accuracy of information on the website is very important to cite sources. Citing sources of the information allow the user possibility to test and obtain additional information.

To determine the actuality of data the author used information about last update. This is especially important in tourism sector that deals with the information such as first and last minute offers, reservations deadlines, and changes in travel arrangement, weather conditions, exchange rates, traffic reports and other. Only 6.9% of travel and tourism websites show update information.

Quality of content presentation

As noted in Table 1 the quality of the content presentation of travel and tourism websites is determined based on the quality of navigation, visual assessment of the colour contrast and the availability of content in foreign languages.
The quality of navigation is established based on determining the existence of the main menu on all website pages, quick search options, site maps, and manual

verification of navigation functionality. The study found that 86.1% of websites have the main menu on all website pages. The site maps have 9.2% of websites, while 24.6% of websites have a quick search option. Manual check has showed that 71.1% of websites have navigation that is fully functional and simple to use (a clear and logical navigation interface).

The realization of the basic principles of legibility is to take care of sufficient contrast between the background colour and colour of text. Poor legibility leaves a negative impression on the visitors and websites cannot achieve direct and indirect effects of the promotion. Without further detailed analysis of the contrast colour, the research determined the number of websites that have good or bad contrast, respecting the basic rule of good contrast - dark text colour and light background. It was determined that 82.3% of websites have good, while 17.6% have bad contrast.

The study determined how many websites provide content in a foreign language, whether it is complete or partial availability, and what the structure of available languages is. Almost half (47%) of websites provide their content at least in one foreign language, but only 30% are fully available in a foreign language.

In the structure of foreign languages, there is the dominance of English with 71%, followed by German with 13%, French with 6%, Hungarian with 4%, Italian and Russian with 2%, Bulgarian, Macedonian, Romanian and Japanese with 0, 5%. The choices of languages that appear, match the target markets that are defined within the Tourism Strategy of Serbia (2005). However, there is a lack of website content in languages from the other major travel markets (Spanish, Polish, Greek, Czech, Slovak and Scandinavian countries).

Visibility and position on search engines

According to research results, the best visibility on local tourism websites was established on the Internet search engine Pogodak. Almost three quarters (74.6%) of links appear in the first 10 results of this search engine. Pogodak is a local search engine, so it was expected to have the best results. Google is on the second place with 70.8%, followed by Krstarica with 61.9% and Yahoo with 46.9%. The visibility of travel and tourism websites on leading local and global search engines is quite low. Even the result of about 75% of visibility is not satisfactory, knowing the vital importance of the visibility on search engines.

The same sequence as in search engine visibility is present in average rank results. However, the rank results, which occur in the first 10 results, are good. The best rank result showed Pogodak with average rank of 1.69. The second is Google with 1.9, followed by Krstarica with 2.27 and Yahoo with 2.42.

Use of Internet promotional techniques

The research included following Internet promotion techniques: Internet advertising, online PR and elements of e-mail marketing. As presented in Table 1 the research determined frequency of the number of websites by the appearance of new section, chats, forums and online polls. In addition, the frequency of appearance of banners, their average number and structure was determined.

The results indicate that 40% of the websites have links that lead to other websites. The average number of links is 4.53 by website. The sector structure of links was used to determine their adequacy. The large number of links (44%) lead to „non tourism“ sector. However, 55% of links lead to relevant websites. The most of links lead to travel and tourism organizations (17%) and accommodation sector (16%), following by travel agencies (6%) and transportation companies (6%). Of the total number of websites, 35.4% have banners, while their average number by a website is 3.55. It is generally known that the banners have little effectiveness. However, if complementary banners are shown on the official websites of well-known travel agencies, organizations or hotel their effectiveness is far greater.

Table 2. The number of websites by the appearance of new section, chats, forums and online polls

Website group	News section		Chat		Forum		Online poll	
	No.	%	No.	%	No.	%	No.	%
Travel agencies	31	31,0	2	2,0	3	3,0	31	31,0
Accommodation facilities	14	23,3	0	0,0	0	0,0	1	1,6
Travel and tourism organizations	36	72,0	1	2,0	1	2,0	7	14,0
Transport companies	13	43,3	0	0,0	0	0,0	0	0,0
Travel portals	16	80,0	1	5,0	9	45,0	3	15,0
Total	110	*42,3*	4	*1,5*	13	*5,0*	42	*16,1*

The representation of new sections, chats, forums and online polls, as a form of direct communication with website visitors, can show the level of online PR use. As shown in Table 2, new section has the highest level of use (42.3%), following by online polls (16.1%). Other forms of direct communication have very low representation.

The last researched Internet promotional techniques was the e-mail marketing. Even in the early stages of development of the e-mail marketing, experts have found numerous advantages of this way of communication (Lewis, 2002). Today, effective marketing cannot be imagined without using this way of communication. The research determined the frequency of appearing of mailing list. The results show that only 13.8% of the websites provide this option. This technique has the largest use in the group of travel agencies (23%). A large number of Internet promotional techniques are in form of onsite communication. Therefore, providing visitors' e-mails should be priority in order to continue communication (Cox, Koelzer, 2004; Baggott, Sales, 2007).

Website rank based on the realized number of visitors and country of origin

As noted, the survey of website rank based on the realized number of visitors and the country of origin was conducted by using Alexa Web service.

In Serbia, all the results ranking less than 200.000 represent websites that generally have good traffic (Stankov, 2009). According to the results of the research, the average ranking of travel and tourism websites is 6.281.186, which is extremely unfavourable. Top rankings have travel portals (2.930.372), followed by tourist agencies (3.346.790) and transport companies (3.786.452). The lowest rankings have tourist organization (9.005.754) and accommodation facilities (12.336.560). Only one website is in the category up to 100.000 (http:www.putovanja.info) and one in category up to 200.000 (http://www.jat.com).

The study found that 73.1% of visitors come from the territory of Serbia and Montenegro. Other visitors come mainly from the territory of former Yugoslavia (Croatia, Bosnia and Herzegovina and Slovenia) and other European countries (Hungary, Netherlands, Switzerland, Germany, Poland, Czech and other).

Conclusion

Many countries have realized benefits and vast opportunities of the Internet promotion. In the future, travel and tourism will be important part of this global network.

A website is the key element of the Internet promotion. A company website is the final place where tourist will be drawn by different online promotional techniques. The largest number of domestic travel and tourism websites has a form of an

electronic brochure that does not allow use of advanced Internet promotional techniques. The most of travel and tourism websites in Serbia have good domain names with country code included. Despite of that, there is a need for the standardization of domain names in order to create recognizable brand.

The prevailing websites are the static ones that greatly restrict the promotional effects of travel and tourism presentations on the Internet. The static websites are also main obstacle for applying advanced Internet promotion techniques. English is dominant among the foreign languages on domestic travel and tourism websites. Although appearing, foreign languages (except English) are not represented in sufficient number to domestic websites, so the promotional effects are mostly limited to English language speakers. In the first place, the holders of promotional policies must direct the promotional efforts to improve visibility on the search engines, as one of the key categories of Internet marketing.

There are many promotional techniques on the Internet, but domestic travel and tourism companies use only few of them. The present techniques are the simplest ones, mostly obsolete forms such as banners and simple posting of links. The online PR is almost unused and represents the key field for more intensive use of the Internet marketing. In the forthcoming period, the online PR will shape the global image of Serbia as a travel destination. The e-mail marketing, as the first Internet promotion technique and the most used one in developed countries, in Serbia is completely neglected.

Previously mentioned characteristics of domestic travel and tourism websites fit into the overall picture of undeveloped Internet "market" in Serbia, and represent main obstacles of the use of tourism promotion on the Internet.

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SURVEY ON STUDENTS' INTEREST IN ECONOMIC-GEOGRAPHY CONTENTS ET SOME UNIVERSITIES IN SERBIA

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Abstract: Economic geography is one of the most significant and highly ranked social and geographical scientific branches within the educational system of Serbia. Economy is closely related to population and settlement development and thus incorporated within a substantial number of courses, contributing to the educational role of such content. The paper highlights the importance of economic content within contemporary geographical university education in Serbia. The research has been conducted among the students and professors at four universities in Serbia, and the results have shown that the majority of students show indifference towards the content. Therefore, innovations should be introduced in order their interest to be raised and the quality of education improved.

Key words: economic geography, content, interest, University, Serbia

Introduction

Economic geography is studied within large number of courses at many universities in Serbia. This paper attempts to indicate the extent of usage of economic geography in university lectures, as well as to point out students' interest in the content presentation during the teaching and learning process.

The first part of the paper deals with theoretical analysis of such content, whereas the second part comprises the questionnaire data on content representation, students' interest and their professors' opinion regarding economic geography content.

This type of research, its subject and objectives contributed to the selection of methodological approach to the research. In order to get relevant data necessary for further analysis, the method of questionnaire with controlled sample was employed.

Various aspects of the results attract attention. Subsequent to the estimation of students' interest in economic geography, certain guidelines may be established

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to influence further development of this teaching aspect within educational process. On the other hand, target groups can be more easily determined (age of students, year of study), to which one should pay attention during processing economic content in education. Economic contents have large impact on economy development which largely influences standards of living and the existence of population.

Framework for Economic Geography Study

Contemporary society makes tremendous efforts to have the best and most efficient organisation. Best endeavours to be more efficient and profitable are made (Ilić, 1975). Substantial socio-economical changes have led to considerable changes in agrarian structure of many countries. Those changes made grounds for numerous agrarian-economic, sociological and geographical scientific publications (Tiškjevič, Jaćimović, 1991).

Economic geography is a young science, which has lately been attracting more and more interest of scientific circles and those who deal with a number of practical problems and tasks within many aspects of society (Basic *et al.*, 1973). The first economic-geographical thesis, which is considered to have led to further publishings and independence of economic geography, is the study by L. Guicciardini *Description of The Netherlands* (1567), and much later in the 1760s, M.V. Lomonosov uses the term "economic geography" for the first time (Saushkin, 1970).

Economy has a specific importance in teaching geography. Student has to understand natural and social conditions of market's intensive growth (Rudić, 1982), due to the fact that is more and more common to be active in economy individually, by far less connected to the family than before, and most frequently economic function is established outside the family (Ivkov *et al.*, 2007). Economic geography as a science began developing in the middle of the 19th century, as a part of bourgeois anthropogeography (Bajić, Tomić, 1982).

Nowadays there is a diversity of economic geography definitions, and therefore beliefs about its position in the system of geographic sciences. It is mostly due to specific directions in the development of economic geography within different national geographical schools (Dinić, 1999). Economic geography is the basic socio-geographical science, which studies laws of spatial organisation development, as well as the organisation of primary, secondary and tertiary activities of society under specific conditions of certain socio-economic systems,

which potential development is influenced to a lesser or greater extent by positive and negative geophysical factors (Tomić *et al.*, 1996).

When spoken of the position of economic geography we bear in mind that economic, cultural and political activity of people form synthesis. As economic activity can not be excluded from the other two, it has to be perceived as the integral part of human geography or socio-cultural geography (along with the geography of settlements, political geography and anthropogeography) (Hettner, 1957). How valuable the exchange of different experiences rooted in the traditions of various nations is, can be seen in a well-known fact that multiethnicity in Vojvodina, but also generally in Serbia, has brought many advantages civilisation wise and contributed to the quality of life (Kovacevic et al, 2005). According to Kovalev S.A. and Pokshishevski V.V. geography of tertiary activities should be considered as a separate branch of economic geography, which is developing parallel to population geography, these two being closely intertwined (Tomić *et al.*, 1996).

S. Ilečić (1952) points out that "economic geography studies distribution of production, expenditure and traffic, i.e. entire economy in certain countries and regions, always as part of the entire context of those areas, analysing how social and natural factors influence, intertwine and compete with it". There is a close connection between economic geography and other geographic disciplines, as well as other related studies considering that economy is a borderline between geography and other disciplines (economic, social, historical, legal etc.) (Miletić, 2007). Among other definitions of economic geography the one by J. Ilic is particularly prominent: Economic geography is a science which studies and establishes laws and conditions of territorial distribution, organisational development (mutual connection and causation) and the importance of structure and extent of economic activity in the given territory. It establishes, analyses and gives prognosis of the territorial quantitative, structural and functional characteristics of the economy of the given territory (Tomić *et al.*, 1996).

Prominent Russian economic geographer J. Saushkin believes that the most important task of economic geography is to study territorial complex (region), its formation in the past, further directions of development, and the laws of evolution and thinking, correlation between regions as well as the work distribution between countries and regions (Tomić *et al.*, 1996). V. E. Den considers that economic geography is entirely economic science, with no specific object of study, but it is an addition to economic history and a contrasting addition to political economy (Anuchin, 1972). According to P. George the objects of study of economic

geography are forms of production and the places in the world where different products are spent. To be more precise it is a social science. It studies specific organisational forms of production process, traffic and exchange as well as the expenditure of certain groups of people (Tomić *et al.*, 1996). Supporters of most geographic schools treat economic geography as a branch of social, cultural or human geography, adding to its framework population and settlement geography, political geography and historical geography. Geographers from Soviet Union and other socialist states identify economic geography with social geography due to the opinion that economic activity is the foundation of all social-geographic activities and processes (Ilić, 1975).

If wider perspective on position of economic geography within the system of geographic sciences in general is taken into consideration, one has to know that it, along with other branches of social geography, makes one of the two existing subsystems of geographic sciences system (Tomic *et al.*, 1996). Knowing the fact that as a general rule all scientific disciplines are divided into three parts, therefore economic geography as well, there are:

- Theoretical economic geography, which deals with theoretical methodological problems of the discipline, to be exact studies the laws of production distribution.
- General economic geography, in which study object is the production distribution worldwide.
- Regional economic geography which studies production distribution in certain countries or regions (Dinić, 1999).

Growing demand and importance of contemporary economic-geographic studies for spatial and urban planning, studying modern socio-economic processes, village transformation etc. contributes to the affirmation of geography as a science and application of data resulting from geographic research to various aspects of social life (Miletić, 2007).

Research Methodology

Tasks and objectives of the research

The main aim of the research is to establish the position and the role of economic geography, as well as to highlight the huge educational and teaching importance of such content within the teaching process.

The complex task of the paper should answer the following questions:

- To what extent are students and professors satisfied with the representation of economic geography content at their faculties;
- What is the level of students' interest in economic geography content;
- Are students and professors of the opinion that such content is interesting, modern, applicable to practical affairs and that appropriate literature is available;
- What is the rate of knowledge acquisition in connection with such content;
- What is the role of economic geography content and its significance level within the teaching process?

Sample

The sample for this research has been appropriately selected. According to the main objective and the tasks of the research, the total sample is divided into two sub samples: sub sample I consisting of 504 students and sub sample II consisting of 40 professors. The sample selection was based on different gender and age structure, year of study (for students), faculty, place of university and scientific domain (professors).

The sample comprises individuals from four universities: Belgrade, Novi Sad, Kragujevac and Nis, and the following faculties: Faculty of Sciences, Department of Geography, Tourism and Hotel Management, Novi Sad (20% of the total number of students and 25% of all employed professors at this department); Faculty of Geography, Belgrade (20% of the total number of students and 25% of all employed professors); Faculty of Sciences, Department of Geography, Niš (20% of the total number of students and 25% of all employed professors at this department); Faculty of Sciences, Department of Ecology and Tourismology, Kragujevac (20% of the total number of students and 25% of all employed professors at this department).

Structure of the sub sample I (students)

The obtained data show that there were 504 questionnaire respondents, out of which 152 males (30.16%) and 352 females (69.84%). Oscillations in percentage figures between male and female respondents are due to the fact that the total female student population at the selected universities is almost two and half times larger than the male student population.

The largest number of respondents belongs to the age group 21-25, 60.3% (18.7% males and 41.7% females), the second age group is under 20 with 27% of the respondents (7.3% males and 19.6% females), the third age group is 25-30 with 10.9% respondents (3.4% males and 7.5% females) and the last age group over 30 with only 1.8% respondents (0.8% males and 1% females). The respondents' structure by the year of study is selected to cover approximately the equal number of students for each year, i.e. to be the valid representation of the total number of students at each year of study.

The share of the respondents at certain years of study is the following: students at the first year 23.2% (7. 3% males and 15.9% females), students at the second year 21.6% (6.3% males and 15.3% females), students at the third year 24.4% (6.0% males and 18.5% females), students at the fourth year 17.1% (6.2% males and 10.9% females), and graduates 13.7% (4.4% males and 9.3% females).

The largest share of the respondents 61.9% (19.8% males and 42.1% females) are the students at the University of Novi Sad, since the Faculty of Sciences, Department of Geography, Tourism and Hotel Management in Novi Sad enrols the largest number of students compared to other faculties included in the research. The percentage of students who study at the University of Belgrade is 30.6% (6.5% males and 24.1% females), then at the University of Niš 3.4% (1.6% males and 1.8% females) and at the University of Kragujevac 4.2% (2.2% males and 2.0% females).

Structure of the sub sample II (professors)

The data indicate that the total number of professors in the questionnaire is 40, (18 or 45% males and 22 or 55% females). It has been observed that the majority of respondents (42.5%) belong to age group 36-50 (20.0% males and 22.5% females).The second largest age group is 21-35 with 30.0% of the respondents (12.5% males and 17.5% females) and the third age group is over 50 with 27.5% respondents (12.5% males and 15.0% females).

As it has been already pointed out, the majority of the respondents 37.5% (17.5% males and 20.0% females) are employed at the University of Novi Sad. The percentage of professors employed at the University of Belgrade is 35.0% (15.0% males and 20.0% females), the percentage of professors employed at the University of Niš is 12.5% (5.0% males and 7.5% females) and the percentage of professors employed at the University of Kragujevac is 15.0% (7.5% males and 7.5% females).

The processed data indicate the following: 45.0% of professors (27.5% males and 17.5% females) covers social and geographical content, 40.0% of professors (10.0% males and 30.0% females) covers tourism content, and 15.0% (7.5% males and 7.5% females) covers regional content in their lectures.

Instrument of the research

The instrument applied in this research is a closed-ended questionnaire consisting of 10 questions divided into four parts. The first part consists of questions related to social and demographical characteristics of the respondents, the second part refers to the pleasure and interest of the respondents, the third part to estimation and the fourth part to ranking the tourism content. The instrument utilised in the third part is the form of a scale for the respondents to grade the level of interest, modern features and applicability of the content and also to indicate whether there is appropriate literature for the content available. The answers are given by circling a number at five point Likert scale ranging from 5 (not at all) to 10 (extremely). In the fourth part the respondents rank their acquisition pace of the content. The grades range from 1 (the fastest) to 5 (the slowest pace and most difficult content).

Research procedure

The research was conducted individually through distribution of questionnaire forms to the respondents and followed by an explanation how to fill in the form. Then the respondents were filling in the forms themselves and personally handed them in to the interviewer. The questionnaire forms were anonymous.

The obtained data were further processed in statistical SPSS (Statistical Package for Social Sciences) programme. Software package SPSS is one of the widely used statistical packages in the world applied to almost all types of the research (Vuković *et al.*, 2002).

Data Analysis and Interpretation

The following results were obtained upon the request that the respondents grade their interest in economics within economic geography content:

Students' opinion

Interest in economic content (Figure 1) was graded as follows. The highest percentage of the student respondents, 27.58% (7.5% males and 20,0% females)

graded the economic content with the grade 7. Slightly lower percentage, 25.79% (7.9% males and 17.9% females) graded it with the grade 8, while 15.9% of them (2.8% males and 13.1% females) graded it with the grade 6. Grade 5 was given by 9.5% of students (2.8% male and 6.7% females) and the top grade 10 was given by only 7.1% of students (2.8% males and 4.4% females).

The results obtained by the data analysis indicate that the interest in economic content is relatively low since the percentage of the respondents giving the highest grades (8, 9 or 10) was only 47%. Mean value of the interest in economic content is 7.40, whereas standard deviation is 1.35 (Table 1).

The data referring to the interest in economic content by the year of the study (Table 1) show that the highest interest is among the second year students since their mean grade given is 8.01. The lowest mean grade is given by graduate respondents and it is 7.06.

Table 1. Interest in Economic Content by the Year of Study (descriptive analysis)

		Number	mean value	standard deviation	standard error	min mark	max mark
The interest for content of economic	1st year	117	7,11	1,318	0,122	5	10
	2nd year	109	**8,01**	1,330	0,127	5	10
	3rd year	123	7,42	1,268	0,114	5	10
	4th year	86	7,29	1,282	0,138	5	10
	Advanced student	69	7,06	1,434	0,173	5	10
	Total	504	7,40	1,358	0,060	5	10

According to one-way ANOVA (Table 2) it has been established that there is statistically significant variation, the level of significance $p<0.01$, among students at different years of study. The application of *Scheffe post hoc* test confirmed that there is statistically significant variance, the largest being between students at second and third year of study.

Table 2. Interest in Economic Content by the Year of Study (ANOVA analysis)

		Sum of Squares	df	Mean Square	F	p
The interest for content of economic	Between Groups	59,365	4	14,841	8,531	**0,000**
	Within Groups	868,063	499	1,740		
	Total	927,429	503			

If data on interest in economic content are observed by the place of the university (Table 3) it may be perceived that the students from Niš express the highest interest which is confirmed by their mean grade of 8.06, while students from Belgrade express the lowest interest in economic content with the lowest mean grade of 7.19.

Table 3. Interest in Economic Content by the Place of the University (Descriptive analysis)

		Number	mean value	standard deviation	standard error	min mark	max mark
The interest for content of economic	Novi Sad	312	7,47	1,393	0,079	5	10
	Belgrade	154	7,19	1,258	0,101	5	10
	Niš	17	**8,06**	1,560	0,378	5	10
	Kragujevac	21	7,48	1,167	0,255	5	9
	Novi Sad	504	7,40	1,358	0,060	5	10
	Total	312	7,47	1,393	0,079	5	10

One-way ANOVA (Table 4) indicates that there are some variances in *interest in economic content* between students from different universities, but they are not statistically significant, at the level of significance $p<0.01$. The application of *Scheffe post hoc* test confirmed that there isn't any statistically significant variance between students from different universities.

Table 4. Interest in Economic Content by the Place of the University (ANOVA analysis)

		Sum of Squares	df	Mean Square	F	p
The interest for content of economic	Between Groups	15,414	3	5,138	2,817	**0,039**
	Within Groups	912,015	500	1,824		
	Total	927,429	503			

Professors' opinion

Interest in *economic content* (Figure 1) has been graded in the following manner. The highest percentage of respondents among professors, 32.5% (17.5% males and 15.0% females) gave the grade 8. The grade 7 was given by 30.0% (12.5% males and 17.5% females), the grade 6 by 17.5% (10.0% males and 7.5% females), the grade 5 was also given by 17.5% (5% males and 12.5% females), the grade 9 was given by only 2.5% (2.5% females), while the grade 10 was not given by any of the professors. The results obtained in data analysis indicate that the percentage of professors who gave high marks (9 or 10) is extremely low, and that the majority of them consider that the students are mostly not interested in economic content.

Mean value of interest in economic content is 6.85, with standard deviation 1.14 (Table 5). Extremely low main value indicates that the professors consider that the interested in economic content among students is very low.

The analysis of interest in economic content by the place of the university (Table 5) shows that professors from Novi Sad give slightly higher grades (mean grade 7.53) than professors from Belgrade who grade their students with lower grades (mean grade 6.21).

Table 5. Students' Interest in Economic Content – Answers by the Place of the University (descriptive analysis)

		Number	mean value	standard deviation	standard error	min mark	max mark
The interest for content of economic	Novi Sad	15	**7,53**	0,834	0,215	6	9
	Belgrade	14	6,21	1,122	0,300	5	8
	Niš	5	7,40	0,548	0,245	7	8
	Kragujevac	6	6,17	1,169	0,477	5	8
	Novi Sad	40	6,85	1,145	0,181	5	9
	Total	15	**7,53**	0,834	0,215	6	9

According to one-way ANOVA (Table 6) it has been established that in professors' opinion from different universities, there is a statistically significant variation, with the level of significance $p<0.01$. The application of *Scheffe post hoc* test confirmed that there is statistically significant variance, being the largest between professors from Novi Sad and Belgrade.

Table 6. Students' Interest in Economic Content – Answers by the Place of the University (ANOVA analysis)

		Sum of Squares	df	Mean Square	F	p
The interest for content of economic	Between Groups	16,976	3	5,659	5,970	**0,002**
	Within Groups	34,124	36	0,948		
	Total	51,100	39			

The responses of professors by their domain (Table 7) point out that the highest grades are given by the professors whose courses are socio-geographical (mean grade 7.17), whereas professors who teach regional courses give economic content the lowest grades (mean grade 6.33).

Table 7. Students' Interest in Economic Content – Answers by Professors' Domain (Descriptive analysis)

		Number	mean value	standard deviation	standard error	min mark	max mark
The interest for content of economic	Social geography	18	**7,17**	1,249	0,294	5	9
	Regional geography	6	6,33	1,211	0,494	5	8
	Tourism	16	6,69	0,946	0,237	5	8
	Total	40	6,85	1,145	0,181	5	9

One-way ANOVA (Table 8) confirmed that there is no statistically significant variance between professors teaching different geographical domains, the level of significance $p<0.01$, concerning the students' interest in economic content.

Table 8. Students' Interest in Economic Content – Answers by Professors' Domain (ANOVA analysis)

		Sum of Squares	df	Mean Square	F	p
The interest for content of economic	Between Groups	3,829	2	1,915	1,499	**0,237**
	Within Groups	47,271	37	1,278		
	Total	51,100	39			

By means of the data analysis from the measurement variable in which the pace and easiness of mastering economic content within economic geography were graded from 1 (the easiest and fastest) to 5 (the most difficult and slowest) the following results were obtained.

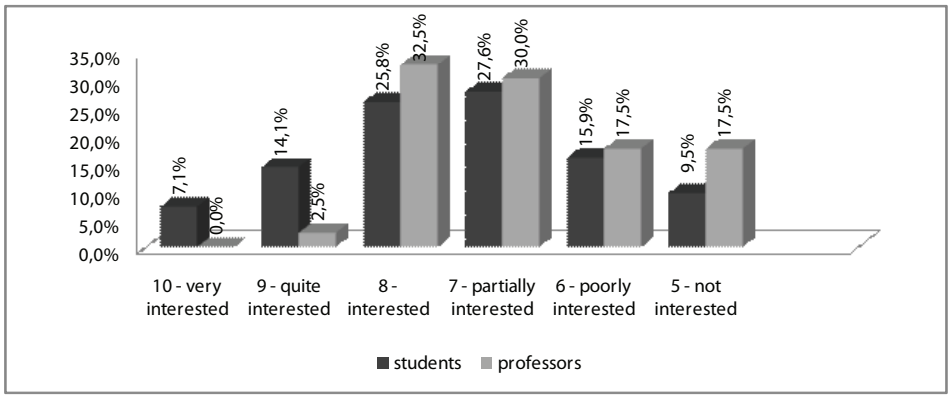

Figure 1. Interest in Economic Contents – Opinions of Students and Professors

Students' opinion

Data analysis related to *economic content* (Figure 2) indicates that the highest percentage of students, 63.6% (19.3% males and 44.3% females) gave the grades 3, 4 or 5, which meant that economic content is mastered with more difficulty than other social-geographical content. There is a small portion of students, only 15.7% (3.2% males and 12.5% females) who graded mastering economic content with grade 1, and only 20.6% (7.5% males and 13.1% females) gave the grade 2.

The mean value of mastering economic content is 3.1, the standard deviation is 1.35 (Table 9). The data analysis regarding the student grades by the year of study (Table 9) shows that the students at the first year of study have the lowest mean values (2.73) and master economic content the fastest, whereas graduate students have the highest mean values (3.32), i.e. master such content with more difficulty.

Table 9. Ranking Economic Contents According to the Pace and Easiness of Mastering by the Years of Study (descriptive analysis)

		Number	mean value	standard deviation	standard error	min mark	max mark
Pace and easiness of mastering economic contents	1st year	117	**2,73**	1,25	0,116	1	5
	2nd year	109	3,28	1,37	0,132	1	5
	3rd year	123	3,18	1,34	0,122	1	5
	4th year	86	3,07	1,41	0,152	1	5
	Advanced student	69	3,32	1,32	0,159	1	5
	Total	504	3,10	1,35	0,060	1	5

By means of one-way ANOVA (Table 10) it has been deduced that students at different years of study do not express significant variations (the level of significance $p<0.01$) regarding the pace and easiness of acquiring the knowledge *on economic content*.

Table 10. Ranking Economic Contents According to the Pace and Easiness of Mastering by the Years of Study (ANOVA analysis)

		Sum of Squares	df	Mean Square	F	p
Pace and easiness of mastering economic contents	Between Groups	23,806	4	5,951	3,316	**0,011**
	Within Groups	895,623	499	1,795		
	Total	919,429	503			

The application of *Scheffe post hoc* test also confirmed that there is no statistically significant variance between students at different years of study.

If data are observed regarding the place of the university (Table 11), it is perceived that it is the easiest for students from Niš to master economic content (mean value 2.76), whereas students from Novi Sad master such content with most difficulty (mean value 3.13).

Table 11. Ranking Economic Contents According to the Pace and Easiness of Mastering by the Place of the University (descriptive analysis)

		Number	mean value	standard deviation	standard error	min mark	max mark
Pace and easiness of mastering economic contents	Novi Sad	312	3,13	1,372	0,078	1	5
	Belgrade	154	3,08	1,326	0,107	1	5
	Niš	17	**2,76**	1,348	0,327	1	5
	Kragujevac	21	2,95	1,284	0,280	1	5
	Novi Sad	504	3,10	1,352	0,060	1	5
	Total	312	3,13	1,372	0,078	1	5

Similarly to previous instances, the variations in grades are minor and statistically insignificant, which is confirmed by one-way ANOVA (Table 12).

Table 12. Ranking Economic Contents According to the Pace and Easiness of Mastering by the Place of the University (ANOVA analysis)

		Sum of Squares	df	Mean Square	F	p
Pace and easiness of mastering economic contents	Between Groups	2,740	3	0,913	0,498	**0,684**
	Within Groups	916,688	500	1,833		
	Total	919,429	503			

Professors' opinion

The data analysis referring to *economic content* (Figure 1) indicates that more than a half, i.e. 52.5% (25.0% males and 27.5% females) of the total respondents among the professors assume that students master economic content slowly and with difficulty and thus gave the grades 4 and 5. Only a small percentage of professors, 15% (2.5% males and 12.5% females) assume that students master economic content easily, thus giving them the highest grade. It is also determined that most professors grade economic contents with grades 1 and 2 or 4 and 5, and that few of them, only 12.5% (5% males and 7.5% females) give the grade 3.

The mean value regarding the pace of mastering economic content is 3.33, the standard deviation is 1.47 (Table 13). Data observed regarding the place of the university (Table 13), show that professors from Niš assume that students easily and quickly master economic content (mean value 1.40), whereas professors from Kragujevac assume that the students master it with great difficulty (mean value 4.33)

Table 13. Ranking Economic Contents According to the Pace and Easiness of Mastering by the Place of the University - Professors' Opinion (descriptive analysis)

		Number	mean value	standard deviation	standard error	min mark	max mark
Pace and easiness of mastering economic contents	Novi Sad	15	3,20	1,52	0,393	1	5
	Belgrade	14	3,71	1,27	0,339	1	5
	Niš	5	**1,40**	0,55	0,245	1	2
	Kragujevac	6	4,33	0,82	0,333	3	5
	Novi Sad	40	3,33	1,47	0,233	1	5
	Total	15	3,20	1,52	0,393	1	5

One-way ANOVA (Table 14) shows that there is statistically significant variance regarding professors' opinion upon pace and easiness of mastering *economic content*, the level of significance $p<0.01$. This statistically significant difference is perceived by application of post hoc Scheffe test between responses, i.e. professors' opinion from the University of Kragujevac and the University of Niš, as well as professors' opinion from the University of Belgrade and the University of Niš.

Table 14. Ranking Economic Contents According to the Pace and Easiness of Mastering by the Place of the University - Professors' Opinion (ANOVA analysis)

		Sum of Squares	df	Mean Square	F	p
Pace and easiness of mastering economic contents	Between Groups	26,985	3	8,995	5,603	**0,003**
	Within Groups	57,790	36	1,605		
	Total	84,775	39			

The grades of professors by their scientific domain (Table 15) demonstrate that professors who teach touristic content assume that students more quickly and easily master economic content (mean value 2.94), whereas professors who teach regional content assume that students master economic content less easily (mean value 3.83).

Table 15. Ranking Economic Contents According to the Pace and Easiness of Mastering by the Professors' Domain - Professors' Opinion (descriptive analysis)

		Number	mean value	standard deviation	standard error	min mark	max mark
Pace and easiness of mastering economic contents	Social geography	18	3,50	1,47	0,345	1	5
	Regional geography	6	3,83	1,33	0,543	2	5
	Tourism	16	**2,94**	1,53	0,382	1	5
	Total	40	3,33	1,47	0,233	1	5

Variation in grades are minor and statistically insignificant, which has been confirmed by one-way ANOVA, the level of significance $p<0.01$ (Table 16).

Table 16. Ranking Economic Contents According to the Pace and Easiness of Mastering by the Professors' Domain - Professors' Opinion (ANOVA analysis)

		Sum of Squares	df	Mean Square	F	p
Pace and easiness of mastering economic contents	Between Groups	4,504	2	2,252	1,038	**0,364**
	Within Groups	80,271	37	2,169		
	Total	84,775	39			

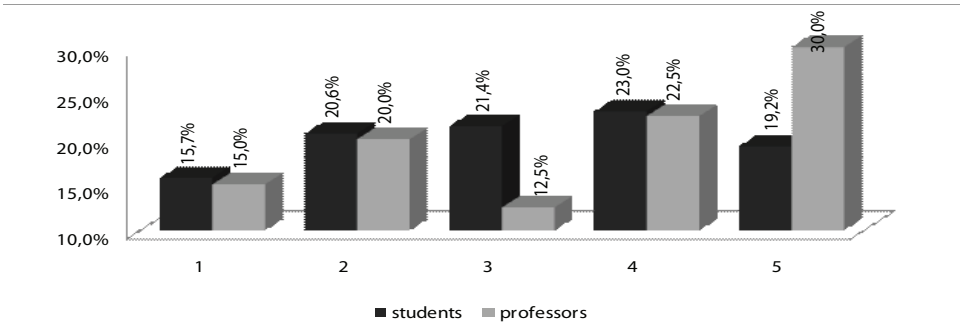

Figure 2. Ranking Economic Contents According to the Pace and Easiness of Mastering - Opinions of Students and Professors

Conclusion

The analysis of the data obtained from students and professors at four universities in Serbia was the start-up form for estimating the representation status of economic content as well as the interest of students in contents related to economic geography. The processed data showed that the students' interest in such content was not

high, and that more than 50% of students gave these contents low grades. The opinion of the professors corresponds to the opinion of the students since they also emphasize low interest of students in economic contents, especially professors from Kragujevac who graded the interest of students with extremely low grades.

The analysis of data referring to the pace and easiness of mastering economic content shows that students acquire economic content with difficulty and it takes more time to master it as opposed to other contents. Such results may be justified by the fact that economic content is rather complex, it contains numerical data so it is difficult for students to master it. One of the reasons for low interest of students in economic content is the lack of adequate and contemporary literature. Students often use old literature which does not contain the most recent facts.

Interest could be attracted if the students, within the courses, were involved in practical research work which would entail finding the most recent data in connection with the subject being taught at that moment. Each subject can be interesting if presented adequately, therefore students have to be enthused and more involved in the work.

Economic geography is gaining importance worldwide, and its complexity is reflected in the numerous issues which connect it to other scientific disciplines. Its very complexity made the science dealing with economy extensive and in many ways multidisciplinary, consequently relatively difficult to acquire in university education.

Economic development leads to higher income and higher standard of living of the population. Therefore, economic content should have growing importance in university education in the future. Also, great interest should be shown for experience and research of other countries, which will be the subject of the following research by the authors.

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CENTRAL AND PERIPHERIAL REGIONS – A TOPICAL PROBLEM IN REGIONAL POLICY

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Abstract: The importance of the regions in the European political and social-economic process is growing still further. The central and peripheral regions are related with regional imbalance in its capacity of structural characteristics of the EU. With each accession to the union the number of problematic regions constantly increases. This fact imposes the necessity of studying the disparities in the development of the central regions and the periphery with the aim of formulating an optimal approach to the stimulation of the latter by outlining the new role of the "local interested parties" for determining the future of the respective territory. The theoretical grounds of the policy towards the central and peripheral regions have been considered. On the example of Bulgaria these two types of regions are analyzed and models have been proposed for territorial development.

Key words: central regions, peripheral regions, theories, approaches, models, policy

Introduction

The chronology of the growing importance of regions in the European political and socio-economic process is related to regional imbalance in its capacity of a structural characteristic of the EU. With each accession to the union the number of problematic regions constantly increases. This fact requires the study of the differences in the development of the central regions and the periphery with the aim of formulating an optimal approach to the stimulation of the latter and outlining the new role of the "local interested parties" for determining the future of the respective territory.

Modern regionalistics implies under a peripheral region a territory, which is deprived of benefits and is dependent on a given central region. The latter is regarded as a territory with high adaptive capacity and significant opportunities for economic growth at the background of the general situation in the country. The greater part of the fixed assets, achievements of the scientific-technical progress (STP) and management functions are concentrated in the central areas.

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For a long time economists have adhered to the "stagnation thesis", according to which the periphery is doomed to stagnation, since this guarantees to its affiliated central region the possibility of development using its raw material resources, markets and labour.

Theoretical formulation of the policy for the central and peripheral regions

Till the mid 80-ies of the XX century the problem of regional imbalance in the developed countries and in Bulgaria was solved by increasing the grants (subsidies) for agriculture, fishing, mining and boosting employment in the public sector. A number of objective factors in the 90-ies made it impossible to achieve equalization of disparities between the regions by subsidies. The inefficiency of the redistributive approach to regional development imposes the necessity of developing a new approach to territorial organization, its essence consisting in the promotion of "autonomous mechanisms" in the problematic regions, i.e. in their endogenous (internal) potential for development. In this way the "equalization" concept has been replaced by the "efficiency" concept and regional policy has been transformed into regional structural policy. Its purpose is not just to provide financial resources to the "poor" region but to invest with the objective of transforming the regional economic structures with the possibly most complete utilization of the region's own resources and its specific features.

One of the most important ideas, inherent to the endogenous approach, is related to the development and strengthening of local autonomy. This approach implies the consideration not only of the problematic, but also of all regions in the EU, since the programmes for the possibly most effective use of the endogenous potential may be applied in each of them. The thesis has been adopted that according to the endogenous approach there are no "useless" territories without any value, but there are inadequate strategies for regional development as well as passive local administration.

The key issue in this approach to regional development becomes the principle of partnership, which presumes close interaction and cooperation between all levels of authority – starting with the local and regional and reaching supranational level. The main objective here is to mobilize the population of the respective region and its administration by enhancing the "bottom-up" approach affording the possibility to clearly declare their interests and to form own strategies for development and to further extend the interregional contacts on the basis of common/collective interests.

The sequence in the emergence and development of the mentioned models exhibits complexity of the independent variables in the production functions. In conventional models, the focus is laid only on the "labour" and "capital" factors. They have dominated the theory during the 50-ies of the last century. The "agglomeration models" became popular after that – in the 60-ies of the XX century. The dominating models in the 70-ies were these for the local environment and the territorial innovation models were imposed after the 80-ies of the last century. They were focused on the interaction between "labour", "capital" and regional factors for localization as: capacity of workforce, technical and organizational know-how, social and institutional structures and innovation as the key driver of economic progress.

The applied approaches to the development of the periphery proceed in three chronological phases: exogenous, endogenous and a mixed approach to the development. The first one considers the development of peripheral regions as determined by external forces. According to the endogenous approach the development is determined mainly by the local stimuli and resources. The mixed approach denies the polarization of the first two and puts an accent on the interaction between the local and external forces. In this case the development of the peripheral regions is related with the enhanced process of globalization due to the fast technological changes in the information and communication sectors. It is regarded as the formation of a chain of networks, in which the resources are mobilized and the control on the process is based on the interaction between the external and internal forces.

Since the theory of endogenous development has a wide scope, only three concepts for endogenous development are considered, which summarize different views of authors working on the topic and are in the basis of a number of successful EU practices:

- The theory for the development of provincial (peripheral) regions (on a municipal level).
- The theory of J. M. Bryden for the potential of the immobile factors in the development of competition advantages of the peripheral regions (Bryden J.M., 1998).
- The theory of innovative environment.

The first concept relies on the endogenous approach to the economic development of the periphery and focuses on building local capacity and institutional structures. The second concept may be regarded as a specific application of the endogenous

growth model and the third one corresponds to the mixed approach to development. It puts the emphasis on the development of the internal potential of the territory, but in the context of the enhancing process of globalization and regionalization.

While national authorities concentrate their attention to solve the problems of international, national and interregional nature, the regional administration, in close cooperation with the local authorities and the population, is responsible for ensuring the sustainable and consistent territorial development. All mentioned levels should act together on the basis of the priority task for sustainable spatial development. Due to the geographic polarization of economic development and to the growing regional disparities in many of the new EU member-states and the states with impending accession, the strengthening of the regional level of the administrative and political system is especially topical as an instrument for attaining more sustainable and balanced regional development.

The paper thesis considers the relationship between spatial interaction and endogenous development. The accent is laid on the importance of the availability of effective dialogue and equitable cooperation between the "local interested parties" with the objective of creating prerequisites for increasing the attractiveness of a given territory as a new location for business and place of residence.

The endogenous growth models of peripheral regions reflect the specific impact of the non-material factors of technical progress – knowledge, technologies, innovations, human capital. Paul Roumer with his work "New Growth Theory" is considered to be the founder of the endogenous growth theory (Roumer P., 1990)

In the endogenous theory growth is defined by factors and conditions, intrinsically inherent to a given economic system. Technical progress and demographic growth are assumed as internal independent variables and in some of the models – investments too. The theory takes into account the significant role of motives and stimuli of the economic agents, the private sector behaviour and the impact of public institutions and the state.

Ch. Plosser distinguishes two groups of endogenous growth models (Plosser Ch., 1989). The first one focuses the attention on the different types of renewable capital (material-substantial and human), i.e. determined by the knowledge and skills acquired by the workers. The second group of models is aimed at revealing the impact of the external effects on economic growth. However, distinguished in this manner, both groups ignore the factor of "market power of the companies".

It is considered in the so-called "schumpeterian models of endogenous growth". The more familiar models of this group are the models of P. Aghion and P. Howitt (Aghion, Howitt, 1992).

It is typical for all endogenous models, regardless of the manner of their construction, that the preferences of the economic agents for savings/investments exert substantial effect on the long-term economic development. In contrast to the neoclassic theory, the endogenous models pay greater attention to the systematic analysis of technical progress and innovation and their influence on growth.

The following issues are taken into account in the present investigation:

a) The model of Paul Roumer (Roumer P., 1990), which is the basis for drawing the conclusions about the benefits from implementing the endogenous development in the Bulgarian planning regions as well :

- Undertaking measures for raising the competitiveness of the local market;
- Active policy for the formation of an adequate local environment that will stimulate the innovations in the private sector;
- Priority of the programmes for developing human capital, investments in fixed capital and free technological transfer with the objective of accelerating the local economic growth and reducing the internal regional differences;
- Obtaining positive effects from the Euro integration.

b) The model of R. Forslid analyzing the interaction between the economic integration and the different types of regional policies as (Forslid, Ottaviano 2003):

- Re-localization of governmental activities in the provincial and peripheral regions;
- Investments in infrastructure;
- Subsidies for local industry.

In contrast to the conventional "centre – periphery" models, where two regions are considered, Forslid includes three asymmetric in size regions. This gives the opportunity to the author to make some additional conclusions, related with: the consequences from the localization in the middle-sized region; the improvement of the relevance of its empirical specifications, etc. The considered model gives the main dependences of the "centre – periphery" relations. It offers the possibility of

making the following conclusions concerning the integration of the less developed regions and the policies that should be adhered to in them:

- In the absence of adequate governmental policy the economic integration may lead to complete deindustrialization of the periphery.
- In order to create a viable agglomeration serving as a counterbalance to the central region, the governmental agencies and their similar structures have to be established in the middle-sized peripheral region. The latter has on its disposal sufficient amount of resources for actual realization of the "bottom-up" approach. In addition, in order to make this regional policy effective, we have to be sure that the revenues from the invested capital really support the industrialization of the periphery.
- The improvement of the infrastructure between the central region and the peripheral ones leads to the deindustrialization of the latter, while the improvement of the internal and interregional infrastructure substantially increases the attractiveness of the periphery with respect to business localization.
- The governmental subsidies are effective in the case of weak agglomeration forces, i.e. the grants are effective in case of both low and high degree of economic integration. Hence the deeper is the integration process the more effective will be the European regional policy.

In the second half of the 90-ies of the XX century a trend was formed in the EU towards transformation of regional policy in the direction of creating conditions for effective utilization of the absolute and relative advantages of the individual regions. In order to implement the endogenous growth, reforms of regional management of EU are carried out, their basis consisting in enhancing local competitiveness, reducing interregional disparities, providing adequate information to the territorial management and others. The mentioned measures represent also an interest for other countries undertaking attempts for similar development. The cardinal question that should be legally elucidated concerns the distinguishing of the powers between the levels of central and regional authorities (Tsvetanova E., 2007).

The innovatory approaches based on endogenous development and applied in the European countries are:

- Models, realized on a regional level (after the example of Scotland);
- Models for cooperation (the LEADER programme);
- Models, realized on a rural level (after the example of Finland).

The "innovative environment" concept is studied in detail, since in the context of the enhanced globalization and regionalization process the system for endogenous development is enriched with the following components: strengthening of networking cooperation (with inclusion of external interested parties), the scientific-technical progress (STP) and its institutional background, translation of external technological and organizational experience. The emphasis on the latter makes it possible to create a special type of "public environment" in the peripheral regions, which contributes to attracting innovative industries in them.

The "innovative environment" concept is based on the utilization of local resources, the achievement of a synergy between local players, external networks, as well as on the continuous innovation process, which should comprise not only high technologies but also all sectors of economy. The collective gaining of experience suggests that the technological and organizational development should be the "engine" for creating an "innovative environment". The basic function of this environment consists in "reducing uncertainty by collecting and disseminating information".

In a study on peripheral regions of the researchers of GREMI concerning the existence of "innovative environment", Camagni R. states that the interactions between the external and local institutions and companies may be rather qualified as restricted (Camagni, 2000). He calls this a "potentially innovative environment" if local synergy has not yet brought to greater innovative activities or "innovations with no environment" in the situation when the innovative activities are already developed by the local companies, which do not rely on regional relationships.

Analysis of the central and peripheral regions

The "centre – periphery" problem arises when the integration, harmony and balance are seriously disturbed or entirely missing in such relationships as: "administrative centre – the rest of the settlements", "town – village" or "urbanized – rural regions", "town centre – suburbs", etc. This means that when analyzing the development of the regions, municipalities and settlements, the word goes about an existing problem of the type "centre – periphery" or central and peripheral regions. This problem occurs only when there is mutual dependence between them and the development of some territorial communities proceeds at the expense of the underdevelopment of others. The public perceptions of the problem are expressed mainly in the contradistinction of two types of territorial communities. Usually the central regions are identified with dynamic economic, social and cultural life, while the periphery is characterized by features as lagging behind in economic, social and cultural life.

The settlement network is relatively uniformly developed throughout the whole national territory of Bulgaria. However, the network of big towns – strongholds of the general social-economic development, is non-uniformly developed. This provokes the emergence of central and peripheral regions and determines interregional and especially internal-regional differences, which are typical for the country and generate problems for the national policy of regional development.

This problem acquires particular relevance in terms of improving the spatial organization of territorial communities. When solving it, the specificity in their development has to be taken under consideration, and respective differentiated strategy for development has to be applied in order to achieve unity in the planning and construction of the territory on the basis of the adopted Strategies for municipal development 2000-2006 and the ensuing from them Municipal plans for development 2007-2013.

The formation and development of the settlements is a long and continuous process, affected by a number of natural, social and other factors. Some of the settlements are transformed into complex settlement structures. These structures are formed by different settlements with respect to their demographic mass, construction of the material-technical basis and the processes occurring in them, their dynamics being dependent on their hierarchical order.

The big town centres and the settlement agglomerations formed around them are "merging". Their development is beyond the boundaries of the modern town and represents a transition of conveyance functions and activities from the town centre to its close periphery. This is also the way of formation of the agglomeration areas by the transfusion and intertwining of adjacent complex settlement formations along the Euro corridors. They represent the basis of the central regions in Bulgaria.

The elucidation of the methodological and methodical bases for distinguishing the "centre – periphery" problem or central and peripheral regions from the other problems of regionalistics is a very important stage of the analytical work preceding the preparation of regional programmes and their implementation.

To identify the "centre – periphery" problem, it is necessary to consider as a unity at least two groups of territorial communities (regions, municipalities, settlements, etc.). When polar concentration of predominantly favourable social-economic characteristics is observed in some territorial communities at the expense of other communities, where mainly unfavourable features have been accumulated, then

we can say that a "centre – periphery" problem is available (Tsvetanova, E. 2007). When such polar concentration of the mentioned characteristics is absent we have no grounds to consider that the problem is available. In this case two situations are possible:

- first, when the characteristics of all territorial communities in the studied totality are relatively favourable – then there is good integration between them and no polarization in "centre" and "periphery" is observed;
- second, when these characteristics are relatively unfavourable – then the territorial communities are not integrated between themselves and it may be assumed that they are the "periphery" of another "centre".

Here it is very important to take under consideration one characteristic feature of the "centre – periphery" problem – its hierarchy. One and the same territories or settlements may represent a "centre" with respect to affiliated to them peripheral territories and settlements, and at the same time may be a "periphery" with respect to others. Moreover, it has to be taken into account during the analysis that the favourable or unfavourable characteristics themselves, which determine the territorial communities as central or peripheral, may be historically inherited or acquired in subsequence.

The presence or absence of natural raw material resources and the degree of their exploitation are an important economic prerequisite for the polarization of the territories into "centre" and "periphery". At the same time, the unbalanced development of a given territory only as a source of raw materials *a priori* transforms it very often into a peripheral one. Usually the territorial communities with diversified economy are central and these with mono-structural economy are peripheral.

According to the character of their development the individual branches of economy also play an important role for determining the status of a given territorial community as central or peripheral one. In principle, the development of the highly technological sectors as electronics, electrical engineering, machine building, etc., is related to the existence of scientific centres, technological parks or innovation transfer. It is determinative for the transformation of a given territory into a central one. Other sectors, for example agriculture, if developed at a low technological level, are typical for the peripheral regions.

Modern agriculture is related with many accompanying activities at the input and the output, as well as with strongly developed infrastructure. For this reason, a

typical agricultural region can play the role of a centre with respect to industrial regions with fading extraction (mining) sectors or outdated industries.

The inefficient management and regional policy or single subjective decisions may cause serious polarization of the territorial communities. For example, the existing global "centre (big cities) – periphery (villages)" problem is the consequence from the policy of enhanced industrialization carried out in Bulgaria. This policy has drained the life-forces of the villages (financial, material and human resources) in the course of decades, converting them into a huge periphery. The result of this policy is the so-called "internal periphery", comprising the villages and some small towns on both sides of the Balkan.

Subjective mistakes or disturbances in the basic principles of town planning can also provoke the emergence of the "centre – periphery" problem within the range of any settlement. The results of such mistakes are the overcrowded with functions and infrastructure urban centres and the peripheral regions, transformed into public bedrooms.

Some subjective decisions for concentration of the administrative, social-health, educational and other services for the population in a smaller number of settlements are also referred to the management factors for the poles of "centre" and "periphery" formation. Although economically logical, these decisions may lead to broadening of the peripheral regions, if the corresponding integrating (connecting) infrastructure is absent.

During the transition to market economy there are positive manifestations, directed to restraint of this problem, as well as negative ones that aggravate it.

The negative aspects are expressed mainly in:

- continuing depopulation of whole regions, which will be transformed into "dead" ones with time;
- the economic crisis took place in the regions with artificially transferred industries from the interior of the country;
- agricultural crisis took place in the regions, where the restitution of land ownership was delayed.

The positive aspects are expressed in:

- enhanced entrepreneurship in "peripheral regions" – border, rural and suburban quarter areas, etc.;
- enhanced interest in the boundary regions with Greece, Macedonia and

Serbia after opening of the borders with respective development of services, infrastructure, etc.;
– attenuation of the permanent migration processes in regions with potential for development.

Policies for mitigating the "centre – periphery" problem

The main requirement towards the policy for mitigating the "centre – periphery" problem is the adequate national policy. The leading of a successful policy for eliminating the problem with the central and peripheral regions may consist in the following:

– stimulation of the integration relationships and aspiration for economic growth based on own resources (endogenous development), development of small and medium business;
– development of all types of services for the population, even though not always effective for the state, in order to give a certain "equal" life standard on the territory of the whole country and especially in the peripheral regions, where it has to be a priority;
– protection of the environment, preservation and enrichment of the national heritage;
– development of the telecommunication system and overcoming the feeling of detachment within the frames of the region, municipality and settlement.

The policy for counteraction against the "centre – periphery" problem has to be focused on the permanently acting factors. It is necessary to encompass with priority the factors in the field of economy and infrastructure and in utilizing the natural and human resources, which are of determinative importance for the status of a given territory as a central or peripheral one. The factors of the second group, which are expressed as a consequence of the status of the given territorial community as a "periphery", should be a priority object of impact in the cases, when degradation processes are observed in the social sphere, culture and public life.

The phenomenon of central – peripheral regions may be considered in several aspects in order to reveal the differences and to outline basic principles for the economic, social and territorial policy of the country. The ideas about the different territorial communities, modern towns and settlement network are shown here in the context of the practice in Europe and our positioning in it.

An attempt is made for generalizing the "centre – periphery" phenomenon in various sections of space. The territory cannot be and should not be considered as a homogenous structure with the centre and periphery components, as well as the municipalities and settlements in a given territory cannot be assumed as closed local systems. The investigation of the differences is aimed at changing the impact on the territorial communities, as well as at directing the policy towards stimulation of their development.

What is the price of the peripheral situation of Bulgaria in Europe?

The country is situated at an important crossroad of Europe. With the liberalization of movement and exchange of loads, goods, information and contacts of people the Bulgarian national space strives for a more responsible and communicating world, which is a factor for the development. There are possibilities for more active behaviour of Bulgaria in the sphere of technical infrastructure under the conditions of still more enhanced competition between the single countries in the region for the construction of international infrastructural corridors across their territory. The realization of the technical infrastructure will be improved and further developed, and will balance the existing infrastructural network, contributing to the active integration of the country on the Balkan Peninsula and in Europe, as well as to the incorporation of the peripheral regions of East Europe.

Bulgaria is the only country in Central and Eastern Europe crossed by five developed by priority European transport corridors. They ensure the integration of the transport network of the country in the Pan-European and global ones, open the national territory towards the neighboring countries and stimulate the cooperation and collaboration in different spheres of social life. The further construction of the transport corridors will activate also the peripheral territories of the country and Europe, crossed by them.

At present, the impact of the corridors is restricted to a great extent and approaches to the "tunnel effect". This is also valid for the regional networks on micro level, which would have broadened the zone of influence of each of the corridors in the depth of the peripherally situated territories. The "opening" of the territorial periphery of the country is already really felt. The extension of the economic collaboration and the cooperation with the neighbouring countries, the joint utilization of local natural resources, the activation of local economy, etc., represent steps towards the overcoming of the "centre – periphery" problem on a national level. It is necessary to realize that the towns from the periphery of East Europe and their remote distance from the centre should not confront them to the

other towns. They need a more different strategy for development for improving the existing and emerging new potential.

The settlement network in Bulgaria is peripheral not only with respect to the geographic-economic centre of Europe. The single elements of this system differ strongly according to their significance and connections between them. They are multiform and with different intensity. The economic development is closely related to the settlement network – it is necessary to build a settlement network affiliating the peripheral regions, in order to enhance the distribution of activities in a territorial aspect.

Models for territorial development

The "centre-agglomerations-periphery" analysis on the lowest level of the national space from the position of the modern town – the diffuse town, is in the basis of the changes in the settlement network. The new aspects consist neither in "discharging" or "transferring" the functions of the traditional town, nor in extending the scale of its physical structure, but represent development as a space – densely constructed and built. This is the final stage of the processes in modern town evolution. The new aspects are expressed in the transformation of some components of the town or more precisely in attenuation of the hierarchy over the space and inclusion of the village as its basic component, i.e. in reticular diffuse urbanization.

Furthermore, the common network of centres-agglomerations-periphery forms the national territorial structure as a whole, and this internal structure, which is a component of the total European network, is highly important for the complete integration of the country in the European space. The distributed phenomenon is encountered in two principal forms: maximal extension of the crown-ring of the biggest cities and expansion of single zones of the diffuse town. In both cases the phenomenon is presented as a process of "densification" of certain territories, i.e. concentration of the national, regional and local level in them compared to the big urban centres. The following situations were formed in the 90-ies: "Strong" integrated territories, which are:

- big monocentric compact centres, obtained by densification and extension;
- polycentric territorial systems – agglomeration formations that are not of the classical type but have a strip-like form, situated along the big transport highways and coastal conurbations.

"Weak" territories – distinguished by retained and fading social-economic development and demographic decline but possessing other valuable characteristics: possibilities for intensive agriculture, tourism and other natural reserves, as well as territories with declining economy.

Periurbanization represents a phenomenon of creeping and occupying territory by urbanization, observed in polarization, which is displayed as progressive expansion of the external rings and radial bifurcations, and as a trend towards reducing the inhabitants in the central centres. This is a phenomenon in the fields of polarization, which are overlapped and confirmed by the reticular non-polarized expansion, corresponding to the big urbanized territories of the diffuse town (Shishmanova M., 2005).

In this way three ways of development are formed: ordinary periurbanization, reticular diffusion and overlapping of both types. The ordinary periurbanization may be integrated as a situation of lower development, depending only on the service functions in a narrower spectrum of social services and production activities. The reticular diffusion is typical for the mixed residential fabrics (residence and production), formed by both the internal dynamics of the processes and the decentralization in a bigger radius. In the places, where the two types superpose and overlap territories with mono- and polycentric complex settlement formations occur, i.e. a prerequisite is created for territories preferable for small and medium business, as well as for development of modern tertiary sector (Shishmanova, M., 2005).

These big typologies represent only one framework scheme, in which differently sensitive processes and situations are interlaced. The "transfusion" and overcoming of the centre – periphery spatial-functional phenomenon, needs the support of the form – dimension relationship on the one hand, and an urbanization process, on the other hand.

The functioning of the high level centres always coincides with the centres of the agglomeration formations. The functioning of the medium level centres has the trend towards reticular distribution on the territory, provoking the increase of mobility. This functional qualitative characteristics turns out to depend still less on dimensions and on the proximity to a certain agglomeration centre, while the possibility for access to the network and the specificity of the environment become determinant in many cases.

The territory may no longer be regarded as a homogeneous space, structured by the centre – periphery components, nor can be the towns considered to be local closed systems. There is an internal cohesion with gradient processes and exact physical manifestation. The physiognomy, the outlook of the territory becomes infinite, with overlapping of many networks-connections, in which the towns are represented as nodes (Shishmanova M., 1999).

The formation of a network of towns represents in fact a non-hierarchical organized system of horizontal communication and cooperation relationships between the towns. The specialization of their functions is determined as relations between partners but also as relations of competition and rivalry. In retrospection the attempts for constructing such networks may be pointed out:

- in the tertiary sector – education, health care, etc., these networks have been and are in a hierarchical order, but their functioning is unsatisfactory;
- production networks – a town with generation centres and with emerging employment in them. Due to different reasons these networks were first affected by the economic crisis;
- in the sphere of the technical infrastructure (power generation, telecommunications, transport, water economy system) by built infrastructural networks – linear infrastructural elements (axes) and nodes, which are the nuclei of towns or single towns. From the viewpoint of technology and functioning of the infrastructural networks the grouping of the linear elements in communication strip zones offers significant advantages: integration, addition, socialization, and in case of necessity – mutual interchangeability and cooperation. These are materialized physical networks, superposed on the territory and requiring improvement and incorporation in the international networks (Shishmanova M., 1995).

At the present moment financial-crediting, servicing and media information networks, as well as labour employment networks, are realized on both urban and interurban level. A strategic cooperative network between the regional centres is in a process of realization for exchange of information, joint work on certain projects, etc. Real and virtual transborder connections exist between the towns.

These networks exist and are intertwined as communication, information and telecommunication and production ones. They are built on territory with various density and dynamics and are more or less stable and significant. The Internet international network already connects all towns.

The specialized urban network – for example of the international airports, international ports, fair cities, economic zones, etc., might turn out to be useful. Another aspect, which would be important for the "correct placing" of Bulgaria in the map of Europe, as well as for regional policy and hence – for territorial planning, is the incorporation of our big cities, expressed as poles of growth – Sofia, Plovdiv, Varna, Burgas and Ruse, in the European network of towns – poles of growth and development.

The development of a network between the settlements on the low levels is also an important issue, for example, between the centres of the rural and underdeveloped regions, etc., by means of dynamic connections with the high levels, so that the isolation from the overall information exchange and hence – the decline of the problematic territories and the display of the "centre – periphery" problem could be avoided.

The theoretical treatment of the "centre – periphery" problem, made on a macro level, may be particularized in a study of this phenomenon on the territory of one district or in an individual municipality.

Approach to the particular investigations

In order to make particularized investigations by comparative analysis, the municipalities, respectively the settlements, are assumed to be multi-dimensional objects. Groups of systems of parameters are composed with generalizing, as well as integral assessments for studying the degree of development of the settlement structures, the degree of completion of the built technical infrastructure and the level of social and economic development of the municipality.
On the basis of multiple quantitative parameters the applied taxonometric method provides the possibility of juxtaposing, comparing and characterizing the territorial communities on a national, district and municipal level.

The considered parameters have different measurement units and are standardized in order to reduce them to a comparable form. The magnitude of the generalizing parameter indicates the level of development and the closer is it to the standard, the higher is the degree of development and vice versa. The territorial communities are ranked by means of the generalizing parameter and thresholds are determined for their grouping. In this way the multi-dimensional object-municipality may be characterized in many aspects.

The repeated application of the taxonometric method, but already on the basis of the generalizing assessments, leads to the integral assessment of development. On the basis of the generalizing and integral assessments decisions can be made for the management of the processes in the territorial communities.

This method offers objective evaluation of the studied structures and the possibilities for their perspective development.

The municipalities, forming agglomeration areas, are ranked in the first places. They are graded very precisely and show the "merging" of these settlement structures in the territorial range of the municipality (Shishmanova M., 1995)

The presented approach and the used methods on meso- and micro-level can be applied on a macro level too, revealing different scenarios and thus making the necessary management solutions. They provide the possibility of composing programmes with priority tasks, which contribute to overcoming the centre – periphery contradistinction.

Conclusions

The endogenous development is a non-traditional method for increasing the effectiveness of regional policy and the development of peripheral regions. The EU member states have responded to the challenges of regional development by establishing specific institutions and conditions for supporting the possibilities for the peripheral/ provincial regions to increase and diversify their production potential and to achieve relative economic autonomy from the "centre".

The analysis of the European practice allowed the formulation of recommendations for regional development of the newly accessed states, of Bulgaria including, in the following directions (Tsvetanova E., 2007):

- The local response to the global challenges is different for the individual peripheral regions. This is due to their unequal potential. The settlements with strong civil society are capable of realizing local development, based on the growth of local small and medium enterprises. Other regions, in which there is no awareness of all "local interested parties", will continue to rely on external help for initiating the process of development.
- The social relationships and entrepreneous culture are of crucial importance for the successful development of the peripheral regions. The role of local policy is very significant because it is expected from it to create, improve

and develop the necessary conditions for realizing the local development. This policy should be oriented towards the environment, in which business and society as a whole are developed, and not only towards supporting certain contractors or enterprises. Its role consists not only in improving the local infrastructure and ensuring financial resources. It finds expression in the stimulation of institutional development and increasing the number of local social, formal and informal organizations and other initiatives that could enhance the economic activities in the region and gain the support of local population.

– The implementing of the endogenous approach to the development requires the active position of all "interested parties" and the readiness for cooperation and networking on equal basis with the aim of realizing the accepted priorities in the strategic regional plans. The positive side of the Bulgarian practice is that the legal framework corresponds to the engagements and requirements undertaken by the country in connection with its accession to the EU. However, it has to be pointed out that there is lack of administrative capacity, long-term vision and not in the last place – low commitment of business and society, when developing the programs for these strategic documents.

In strategic aspect the endogenous development and spatial-economic interaction are realized by the business networks and regional economic clusters. The views about the applicability of the concept for endogenous development in regional practice in Bulgaria and the fact that it will catalyze the effectiveness of the process of regional development may be summarized in three hypotheses:

– The EU practice proves the application of the "bottom-up" approach to regional policy as a strategic necessity for the achievement of sustainable development and growth;
– The endogenous development is a means for overcoming the insufficient information and apathy of the "local interested parties" from the peripheral regions with respect to regional development;
– To realize the concept of endogenous development in the Bulgarian periphery, it is necessary to ensure continuous, institutional and equitable interaction between all "local interested parties".

As a result of the aspiration for cohesion with the common regional policy, the need of individual approach to the development of the regions is still not sufficiently considered in the Bulgarian practice and this may lead to aggravation of the problem with the central and peripheral regions. The non-traditional methods

as the endogenous development – may provide flexible solution of the regional development problems by activation of the internal potential of a given territory and finding the most suitable position in global economy.

The integration process in Bulgaria requires that the country should be in harmony with the trends for transforming the regional policy of EU since the end of the last century. The efforts should be focused on the effective utilization of the absolute and relative advantages of the individual regions and especially on the development of the concept for endogenous growth and the application of the "bottom-up" approach. One of the greatest challenges for Bulgaria in this respect is to give more freedom to local self-government.

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REGIONAL COMPETITIVENESS: THE CASE OF WESTERN CHINA

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Abstract: This paper explains the concept of regional competitiveness and the factors that influence on it. A large number of various authors explain this concept, based on its different aspects, including: productivity, mikroaspekts (firm), quality of human capital, innovation, technology, infrastructure, social capital, etc.. Taking into account complex nature of regional competitiveness, it is difficult to determine a standard definition of this term. The second part of this paper refers to the case of western China. Substantial disparity in regional development is a reality in every geographically large country, and the causes of the disparity are numerous and complex. Regional inequality has been an important issue in China. This paper generally summarized China's Western regions geography, government policies and development situation. The authors put forward some practical strategies on how to help the western regions create a favorable environment to attract national and international investment.

Key words: regional competitiveness, factors, regional development, western China.

The concept of regional competitiveness

The regional component of the economy becomes subject to the scientific and political interests during the 1980s and also a very important role in the international economic debate in the last decade (Porter, 2003). Changes in economic processes, new market demands, globalisation (Zimmermann, 2002), shorter manufacturing processes, the need for innovation, etc., are the main generators of the regional economy. Acording to OECD reports (2002), this can be described as:

Globalization demands more rapid adjustment and strategic positioning of not only countries but also regions, so that they are not left to lag behind or decline in the process. In the new economic environment, policy-makers are helping build dynamic and flexible regions and cities. They also assist the transition from individual closed local economic systems to a new, open global system. To do this properly, it is important to "think globally and act locally".

Competitiveness is defined as the ability to produce goods and services which meet the test of international markets, while at the same time maintaining high

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and sustainable levels of income or, more generally, the ability of (regions) to generate, while being exposed to external competition, relatively high income and employment levels (European Commission, 1999). The term "competitiveness" became of common use only around the 1980s, by the transferring of the public policy operated by Michael Porter (Viassone, 2008). This term is very complex and presents subject of many debates among authors. At firm level competitiveness has a relatively clear meaning and can be easily defined as the capability of a firm to survive and grow, taking into account the competition of other firms for the same profits (Powell, 2001). At national level, it may be defined as the ability of producing goods and services which meet the taste of international markets, while at the same time maintaining high and sustainable levels of income or, more generally, the ability of generating relatively high income and employment while being exposed to external competition (Viassone, 2008). Krugman (1995, 1996, and 1997) is perhaps the best-known critic when it comes to using competitiveness with reference to nations. Krugman argues that using the term competitiveness is dangerous, as it can lead to protectionism and bad public policy. The term seems to imply that in the world economy, the benefit of one nation or region comes at the expense of another. Also, Krugman argues that the concept of regional competitiveness is empty and refers to nothing other than the competitiveness of firms within regions.

The issue of regional competitiveness is subject of theoretical, empirical and policy debate. In an era of performance indicators and rankings it is perhaps inevitable that regions and cities should be compared against each other in terms of their economic performance (Kitson *et al.*, 2008). It is important to understand that under this term does not include games in which there are losers and winners, but it is a possibility of the region to attract investment. Specialization, efficient resource allocation, innovation and creativity, uses of geographical and resource advantages, etc - positively affect the economy, not only a specified region, but also the economy as a whole (in specific country). Competitiveness of an economy is generated by the capacity of its region to provide such an economic activity that will affect the dynamic economic growth (Vuković, 2009).

The significance of the term regional economy can be linked to the development of economic geography. Economic geography did not have great consequence in economic research, until few decades. As a academic discipline, economic geography has held a subordinate position in relation to order branches of economics and business studies (Maskell *et al.*, 1998). Specifically, only a small number of authors took into account the location of factors of production in economic analysis (Krugman, 1991). From the 1980s onwards, economic

geography moved away from traditional economic analysis and transformed into a more interdisciplinary approach using insights from social, cultural and political sciences (Boschma, Frenken, 2005). It is clear that economic geography must moved from the periphery to the main stream (Porter, 1994). There is now a considerable literature, within both economic geography and economics that emphasises the distinctive role of regions and cities as sources of key external economies (Kitson *et al*., 2008). This interest is in fact part of a more general recognition of the role of geography as a source of increasing returns, and the rediscovery and extension of Alfred Marshall's original triad of external economies of industrial localisation. The importance of economic geography can be seen with a needs of specific territorial unit to provide results based on their specific factors, or where geographic regionalists focus on defining the meaning of territory and explaining growth of a region's output (Camagni, 1992). Taking into account this observation, the economic geography is strongly linked to the regional economy.

Factors of regional competitiveness

According to the original meaning, included in the Global Competitiveness Index (World Economic Forum)[2], it can implicitly be understood that the regional competitiveness is the level and quality of life in one region. On the other hand, this term could be understood as ability of region to attract factors of production. Second term indicates that the regional competitiveness can be described as a regional attractiveness, because does not primary contain standard Porters indicators. This means that the regions posses informal institutions and intangible aspect of competitiveness (Zarić, 2009). The question is: What are the factors that make a region attractive? Taking into account the complex nature of regional competitiveness, we can extract the following factors of regional competitiveness:

– *Human capital* - higher quality of human capital provides a greater potential for higher added value in production. In addition, the quality of human capital is more susceptible to innovation, adoption of new technology, greater productivity, which consequently contributes to the growth of regional competitiveness. It is important to note that the major impact has the demographic structure of the population, taking into account the age and education level of residents.

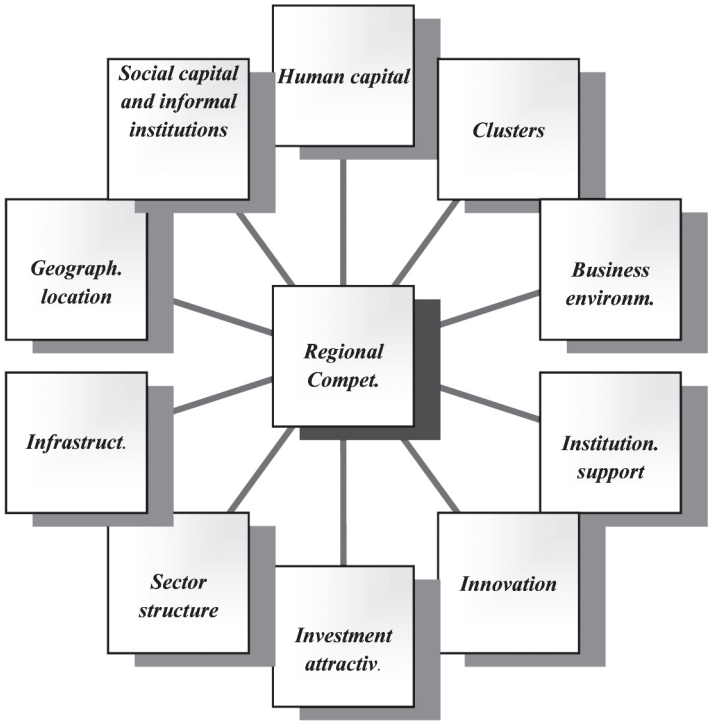
[2] Michael Porter and Xavier Sala-i-Martin defined competitiveness in The Global Competitiveness Report, including indicators: institutions, infrastructure, macroeconomic stability, healt and primary education, labor market efficiency, good market efficiency, financial market sophistication, market size, technological readiness, higher education and training, business sophistication, and innovation.

- *Clusters* - represent an important component of regional competitiveness. Regions which develop clusters are almost always more competitive than others because they are characterized by greater specialization, better capacity of informations and business organization, the positive effects of entrepreneurial networks, etc.
- *Business Environment* - Regional competitiveness depends on the quality of business environment. Regions with better business environment are more likely to develop entrepreneurial potential and provide new business opportunities.
- *Institutional support* – Applies to government and institutions support to strengthen regional competitiveness. Appropriate regional policies, with the support of institutions (funds, agencies, etc.) generate region's competitiveness and growth.
- *Innovation* - The key element of high regional competitiveness (Sepić, 2005). When we mention the term innovation, it doesnt mean only the new and high technology, but also any improvements production, marketing, management and organization system. Taking this into account, it is clear how innovations impact on a competitive advantage of some region. The development of innovations is most influenced by the existence and connectivity of research centers, universities, companies, public, financial and other institutions. High innovativeness also requires a suitable environment, infrastructure, and co-operation within clusters of firms (Stern *et al.*, 2000; Porter,Stern, 1999).

1. *Investment attractiveness* - Domestic and foreign investments are an important determinant of growth and competitiveness of the region. When investitor making investment decision, the investor will usually take into account several regions, but investitor will invest only in the most attractive. The various factors will affect his decision: distance from markets, infrastructure, regulatory environment, cost factors, quality of human capital, entry barriers, social and political stability, and so on.
2. *Sector structure* - Competitiveness of the region depends on the productivity of their sectors. Those sectors that generate higher value have a greater impact on regional growth in relation to those sectors that have less. Sectoral structure of the region should be based on those sectors that have the highest productivity, which will affect more to regional competitiveness.
3. *Infrastructure* - The development of infrastructure has a major impact on the competitiveness of the region. When we observe a certain infrastructure in the region (which affects its competitiveness), then we

think on: transport, telecommunications, IT, energy, social, business and institutional infrastructure.

4. *Geographical location* - Regions located near the metropolis, will have positive effects on the competitiveness of their "neighborhood." Similar considerations apply to those regions that are located near transportation corridors or have border advantages. Isolated regions have geographical location disadvantages (Sepic, 2005).
5. *Social capital and informal institutions* - The intangible aspects of the competitiveness of the region, which is based on social equity, tradition, a strong sense of belonging and confidence of citizens (Zarić, 2009). Regions of low factor productivity often create their own competitive position on intangible factors.



Figures 1. Factors of regional competitiveness
Source: made by authors

The Case of Western China

With the global economic integration, some changes happend, such as the global abolition of trade barriers, the shift of political, administrative and in some cases even the fiscal power to supranational and sub-national entities, limited central states to intervene and change the regional fortune. All these indicate the way will be tougher than ever to regional competiveness as the increased regional competetion for market shares, investment, and skilled workers. The main task for the policy-makers is to search for best practice and innovative territorial policies.

In the case of China, surprisingly little attention has been paid to the experience of the emerging Chinese regions in the world and there existes controversy about the key mechanism of economic growth in China. As for the current global economic development situation, the financial crisis directly led to a sharp decline in global transnational direct investment meanwhile hurting foreign investment in China. Although China remains most attractive country for foreign investment, China still should timely adjusted policies and adopted a series of initiatives, such as maintaining financial stability and promoting the revitalization of industries and the advancement of technological innovation, so as to create a sound investment environment and provide domestic and foreign companies with new opportunities and room for development.

However, substantial disparity in regional development is a reality in every geographically large country, and the causes of the disparity are numerous and complex. Regional inequality has been an important issue in China. Public concern for regional income disparity in China has been increasing quickly since the early 1990s. The concern for social equity and social stability has led China's top leaders to commit themselves to accelerating the economic growth of the interior provinces. The budgets for infrastructure investments in the poor provinces have increased substantially every year, and a Western Region Development Office has just been established under the State Council (the Chinese cabinet) to formulate a comprehensive development strategy and to coordinate its implementation.

Since the establishment of China in 1949, regional development has been a hot topic mainly as a result of its role in debates concerning the nature of socialism, central control and local autonomy, and resource allocation among regions. Since the launch of the economic reforms in 1978, China's dominant development policies have shifted from ones based on self-reliance to ones based on comparative advantage and open door policy. The acceleration in the opening-up process in 1992 led to an inflated number of so-called open economic zones, set up by local

officials without proper authorization. Besides the official policy launched by the State Council, the 30 provinces, as well as hundreds of counties and townships, started to formulate their own preferential policies for foreign investment in specific "development zones". As a consequence of this "zone fever" (Yang, 1997), there were around 2,000 open economic zones of various kinds at and above the county level by 1993 (and probably even more below the county level), offering tax exemptions and reductions of all sorts in order to attract investment. The Open Door Policy consisted of attracting foreign direct investment and promoting foreign trade in targeted areas. This opening up initially was limited to two southern provinces (Guangdong and Fujian), then gradually was extended to larger geographical units: first along the coast and then to the inland provinces. The open economic zones provided investors with various preferential tax treatments, and exemptions on duties and from labor regulations.

Of the three regions in China: coastal, central, and western, the Chinese government focused its attention on the first when it began economic reform (Yang, 1990, 1997). In late 1999, after two decades of pursuing coastal development, Chinese leaders announced a change in China's regional development strategy and initiated the western drive. Currently, the economic regions of China covered under the strategies promulgated by the Central government of China: The relatively wealthy east coast, "China Western Development" Strategy, "Revitalize Northeast China" Initiative, and "Rise of Central China" Strategy.

The western region of China includes 10 provinces, municipalities and autonomous regions: 6 provinces (Shaanxi, Guizhou, Gansu, Qinghai, Sichuan, Yunnan), 3 autonomous (Xinjiang, Ningxia, Tibet), and 1 municipality (Chongqing). The region covers 5.38 million square kilometers, 56% of the country land area, and has a population of 287 million people, 23% of the national total. The territory of the western region is vast, the sparse population and undeveloped economic resources need to be strengthened and exploited. It is also the region in which most of China's minority nationalities live, for instance, Hui, Zhang, Miao, Uigur minor peoples, ect.

The western region is very rich in natural resources. Total water resource account for 82.5% of the nation's total, and utilized water reserves account for 77% of the total, though only 1% of these reserves has been used. The region's mineral reserves are also huge.

Figure 2. Provinces in China
Source: http://www.euroasiasoftware.com/english/chinese/regionereng.html

According to statistics for verified reserves, the region holds 36% of the nation's coal reserves, 12% of its petroleum and 53% of its natural gas reserves. 120 out of 140 categories of verified natural mineral resources are found in the western region, with some rare metal reserves among the richest in the nation if not the world[3].

The natural and cultural resources for tourists in this region are also colorful. There are lots of World Natural and Cultural Heritages in this region. Such as Three Parallel Rivers of Yunnan protected Areas, Yungang Grottoes, Longmen Grottoes, Dazu Rock Carvings (Gansu), Old Town of Lijing (Yunnan), Mountain Emei Scenic Area, including Leshan Giant Buddha Scenic Area (Sichuan), Historic Ensemble of the Potala Palace, Lhasa (Tibet), Mausoleum of the First Qin Emperor (shannxi), Mogao Caves (Gansu), Jiuzhaigou (Sichuan), ect. This region

[3] Data available: www.stats.gov.cn

is contiguous to more than 10 countries with borders extending over a distance of 12,747 kilometers. With such extensive borders, there is no doubt that the region presents an attractive outlook for international trade with the border countries. The Silk Road that cut across the western region has ever been the first passage of China's exchange with outside world throughout its long history. The present western region will increasingly flourish, representing the glorious process of the region's massive development.

In 1999, the Chinese government publically announced its official plan to develop western China. Its goal is to try to achieve a satisfactory level of economic development in the western part of the country in a five - to ten - year time - frame and to establish a "new western China" by the middle of the 21st century. Then all people in the western region will enjoy social stability, economic prosperity, ethnic unity and an ecologically healthy and sustainable landscape in the future. Since the People Republic of China was established 60 years ago, the industrial systems, science technology and education, transportation, telecommunication in this region have greatly developed and a sound foundation has been laid for progressive development. The main components of the strategy include the development of infrastructure (transport, hydropower plants, energy, and telecommunications), enticement of foreign investment, increased efforts on ecological protection (such as reforestation), promotion of education, and retention of talent flowing to richer provinces.

Table 1. Population of Western Region by Sex and Age Composition, 2008.

Region	By Sex (1000 persons)		Age Composition (1000 persons)		
	Male	Female	Age 0-14	Age 15-64	Age 65 & over
Shaanxi	17233	16766	4857	17633	3055
Gansu	12010	11730	4899	16902	1939
Qinghai	2524	2484	1088	3576	343
Ningxia	2817	2716	1266	3909	358
Xinjiang	9649	9355	3978	13660	1366
Sichuan	37341	36381	12794	52488	8440
Chongqing	12878	12667	4857	17633	3055
Yunnan	21290	19658	9063	28659	3225
Guizhou	17736	16390	8888	22460	2778
Tibet	1253	1323	566	1839	172

Source: Collected from China Statistical Yearbook, 2009

Population structure in western China can best be best presented in following tables. The following table presents the structure of the population in the studied area (Western China): age structure, educational structure, the number of workers, male and female populations, and similar information (Table 1 and Table 2).

Table 2. Population of Western Region by Educational Attainment and number of Employed Persons, 2008.

Region	By Educational Attainment (1000 persons)					Workers
	No School	Prim. Sch.	Junior Secon. Sch.	Senior Secon. Sch.	College & higher level	(1000 Persons)
Shaanxi	2513	9264	12665	5023	2802	19466
Gansu	3530	7901	7283	2550	999	13887
Qinghai	704	1877	1231	483	222	2768
Ningxia	458	1673	1918	656	390	3039
Xinjiang	849	6039	6894	2029	1699	8137
Sichuan	6792	28278	24676	7012	3038	48745
Chongqing	1740	9424	9261	2564	1019	18371
Yunnan	4632	18386	11108	2571	1334	26795
Guizhou	4014	13495	10642	2354	1108	23016
Tibet	818	1131	315	80	41	1604

Source: Collected from China Statistical Yearbook, 2009

Western Regional Development Program

The Western Development Program is basically composed of three stages in 50 years.

- From 2000-2010, the preliminary deveolpment stage, development stresses on structure adjustment, infrastructure, eco-environment, education and technology. Improvement in market mechanism, investment evironment, searching for special industrial development point.
- From 2011-2030, speeding-up development stage, based on the achievement in the first stage, confirmation the development, relealize the all-round improvement in induralization, market mechanism, professional region distribution and achieve great leap on economic development.
- From 2031-2050, pushing-forward modernization development stage, reinforce the development ability to some leading regions, strive for entering the orbit of international economic system, stress on the agricultural development in the remote and poor areas, improve the productivity and people's living standard, reduce wealth disparity between regions in China. In order to carry out the great strategic plan, series of projects have been built and implemented through years.

Since the year 2000, some major projects and events are listed in the following Table 3.

Table 3. Chronicle of Event in Western Development Program, 1999-2007.

Year	Chronicle of Event
1999	the "Western Development" guidelines are clarified
2000	the "Western Development" plan begins
2001	the official website of the "Western Development" program is launched
2002	construction of the "West-East Gas Pipeline" begins
2003	the policy of "Returning Grazing Land to Grassland" comes into effect
2004	the Law on Promoting Western Development is listed on the legislative plan of the 10th National People's Congress
2005	compulsory education tuition and fees become exempt in western areas
2006	the Qinghai-Tibet Railway begins operation
2007	the Ministry of Finance invests 280 billion Chinese yuan in the west to support key projects

Source: made by authors

The western development bureau affiliated to the state council released a list of 10 major projects to launch in 2008, with a combined budget of 436 billion Chinese yuan - 64.12 billion U.S. dollars (Economic Review, 2009). These projects included new railway lines connecting Guiyang and Guangzhou, Lanzhou and Chongqing, Kashgar and Hotan in Xinjiang; highways between Wanyuan and Dazhou in Sichuan Province, Shuikou and Duyun in Guizhou Province; airport expansion projects in Chengdu, Chongqing and Xi'an. They also include the building of hydropower stations, coal mines, gas and oil transmission tube lines as well as public utilities projects in western regions. By the end of 2007, China has started 92 key construction projects in western regions, with a total investment of more than 1.3 trillion Chinese yuan (Economic Review, 2008). The Big Western Line, a possible element of the South–North Water Transfer Project, is a proposal for diverting water from the upstream sections of six rivers in southwestern China, including the Mekong, the Yarlung Tsangpo and the Salween, to the dry areas of northern China through a system of reservoirs, tunnels and natural rivers. This project may be the most controversial plan to date.

Policy Support

In order to realize the achievement, China has already begun to speed up the building of extensive infrastructure projects in the western region. Water conservancy, energy, telecommunications and urban facilities have been placed at the top of the government's "Western Region Development Strategy" agenda. The State Council cooperated with all related organizations to formulate policies

and measures for the western China development. Based on the suggestions of other parties concerned and taking all factors into consideration, the Western China Development Office has formulated a comprehensive policy program for the purpose of creating positive environment for the implementation of western China strategy and rapid development of the region. Policies of reform, science, technology and education have been given special attention.

Reform and opening-up to outside are crucial areas in the course of policy-making. To reinforce reform of state-owned enterprises, animate and develop urban and rural enterprises of different ownerships including collective enterprises, individual entities, private enterprises and foreign enterprises, so as to gradually make the enterprises as the main entity in western development. Western regions should be more opened to the outside world. To improve the climate for investment, expand areas that strive for long-term and favorable foreign loans, develop export-oriented economy and exchanges with foreign economic technologies. As for the domestic enterprises, conditions should be created to attract enterprises in developed areas to invest and bring management skills to this region. East and west co-operations on economic and technological and joint development in various forms should be further strengthened. To guide foreign investment in western regions, some favorable policies have been built in succession. Such as:

- In 1995, the restrictions can be moderately relaxed as to the projects under the Category A that restricts foreign investment as long as they can take the advantages of the western resources and obey the country's industrial policies, which can be referred in "Temporary Regulations on the Guidance of Foreign Investment".
- In the "Catalogue of Foreign Investment Industry Guidance" (Revised Version 1997), conditions for foreign investment projects in western regions were improved favorably. Such as Coal-fired power plants with a capacity of 300 MW per unit are classified into the restricted Category B except for remote areas, which is actually a favorable policy catering to the western regions.

To coordinate with the western development strategy, the country has continued to adopt some "preferential policies" to encourage foreign investment in China's western areas. The policies are decided by the State Council that the foreign investment projects in western regions under the encouraged category and Category B defined by the "Catalogue of Foreign Investment Industry Guidance" can enjoy a reduced 15% income tax rate by permission after 3-year period of existing favorable taxation policies expired. And for the export-oriented enterprises with a

yearly export-to-productions rate of more than 70% or up, a reduced 10% income tax rate can be granted that year. Furthermore, the State Council has decided to upgrade 7 development zones from local level to the national level, namely, Xi'an, Chengdu, Kunming, and Guiyang in western regions (Ministry of Commerce of China, 2009).

Financial Support

From 2000-2008, the total investment on the infrastructure construction amounted to 1.7 trillion Chinese yuan which is the biggest investment in history. The great financial support aimed to guarantee all projects developed for the infrastructure implemented successfully by a quick start, enough capital and highest quality (www.stats.gov.cn). After 10 years construction, the western region of China has achieved progress in all different aspects, especially the following:

Economic Development

China's attempt to develop its western regions has had varying effects on the West's economic development. Massive investment has boosted the region's output, effectively raising the GDP in all western regions. During the 2000-2008, the combined GDP of the western regions increased from 1.66 trillion Chinese yuan to 5.82 trillion yuan with annual increasing rate 11.7% on average. The industrial part increased from 0.59 trillion Chinese yuan to 2.4 trillion yuan. Total investment on capital asserts is up to 3.58 trillion yuan from the 0.61 trillion with an average annual increasing rate 22.9%. The total amount of consumable increased from 0.56 trillion Chinese yuan to 1.92 trillion with increasing rate 14.9% annually on average. In term of import-export trade, the total amount reached 106.8 billion US $ with 25.6% increasing rate, from 3.8% of total nation amount in 1999 to 4.2% of total in 2008 (China Statistical Yearbook, 2000-2008). As for infrastructure development, with groups of construction projects implemented, the poor image of western region has been changed, attracting more foreign investment in the region. The total 102 major engineer programs have achieved break-up progress, ranging railway, energy, transportation to irrigation. For example, the highway mileage in Shannxi has been increased to 2500 kilometers from no more than 200 kilometers, mainly financed by the national investment in 1999-2008. Gansu has got a large growth to 1500 kilometers from only 13 kilometers in 1999 (China Statistical Yearbook 2000-2008). The development of some characteristic industries has become the regional predominance. Such as crop and livestock farming and the further processing of agricultural products that feature high technological

content, high added value, and with the capacity to increase farmer's incomes. And high-end and new technology advanced manufacturing, energy-saving and environmental protection and modern services.

Foreign Investment

The economic power of the western regions has been improved remarkably after the 60-year construction, especially the 30 years of the reform and opening up. Economic conditions in various aspects, especially in Chongqing, Xi'an, Chengdu and Kunming are no worse than those of some coastal cities. In terms of attracting foreign investment, western regions have their own advantages: abundant natural resources, low labor costs, cheap land rents, and huge potential markets. However, foreign investment projects, the amount of contractual foreign capital and the amount of real utilization of foreign capital in western regions still accounted for a comparatively small proportion of the whole country. Therefore, one of the major objectives of the Open Up the West initiative was to bring in foreign investment by creating a more stable investing environment through infrastructure construction. This was a success for the western development project at some level, for statistics shows a substantial growth in foreign investment in the western regions, from US $1,837.35 million in 1999 to $1,922.19 million in 2001. In 2008, the foreign investment reached 66.19 billion US $, from 1998 to 2008, increased 181.54%, from 5.2% of total in the country in 1998 to 7.2%. By the end of 2008, accumulated amount of the foreign enterprises has grown to 39,990 with real foreign capital 40.357 billion US$ (China Statistical Yearbook 2000-2008). Now the region is still driving foreign enterprises to engage in the international service outsourcing sector and vigorously participate in various investment projects that the central government has arranged to boost domestic demand, as well as supporting the consistent improvement of the function of multinational companies' regional headquarters in China. Effective policies, stable economic growth, huge market size and labor force advantage have fueled the confidence of multinational companies, which are continuing to "extend olive branches" to the western region of China.

Environmental Protection

Foreseeing significant environmental impacts in the massive infrastructure development program, the state highly publicizes environmental preservation in its campaign to open up the West. Farmland conversion to forest and grassland is the dominant strategy for this effort, targeting specifically the regions crucial to the Yangtze's protection. In Sichuan, the government aims to protect the 19.23

million hectares of existing forest and plant an additional 2.93 million hectares of new forest to diminish the amount of silt flowing into the Yangtze. Around 20,000 mu of farmland was converted in Guizhou in 2001, a key region for Yangtze preservation. In Shaanxi, 571,000 hectares of farmland and 427,000 hectares of wasteland were converted to forest or grass between 1999 and 2002. Another 280,000 hectares of farmland and the same expanse of wasteland were converted in 2003 (National Bureau of Statistics, 2005). China's environmental program in the west has made China "one of a few countries in the world that have been rapidly increasing their forest cover", according to David Dollar, director of the World Bank in China.

Improvement in Living Standard

Meanwhile net income grew on average 10% for urban residents in the west and 6.8% for rural residents. Initiatives encouraging Chinese from wealthier and more crowded regions of China to move to the relatively less crowded western regions has resulted in population growth in (a few cities), most notably Qinghai with its increase of 12.6% (Economic Review, 2009). Furthermore, with the government favorable and preferential development policy, enough financial support, and special geography, the western region of China will go further and make greater progress in the economic and social development.

Conclusion

Taking into account the large number of theories and researchings in the field of regional competitiveness (Porter 1998, 2001, 2003, Krugman, 1995, 1996, Boschma 2003, 2004, 2005, Kitson et al, 2008, Storper, 1997, Stern, 2000, Powel, 2001, and many others) it could be concluded that regional competitiveness is a very complex issue, that can not be seen only with the micro or macro point of view, because it must include local and other specific factors (social, cultural, *soft factors*) that make the region competitive. It is important to understand that under this term does not include games in which there are losers and winners, but it is a possibility of the region to attract investment. Globalization, new economic environment and the needs for innovation, demands more rapid adjustment and strategic positioning of regions. In those adjustment and strategic positionings, specialization, efficient resource allocation, innovation and creativity, uses of geographical and resource advantages, etc. - positively affect the economy, not only a specified region, but also the economy as a whole (in specific country).

In the case of China, surprisingly little attention has been paid to the experience of the emerging Chinese regions in the world and there existes controversy about the key mechanism of economic growth in China. China remains most attractive country for foreign investment, still should timely adjusted policies and adopted a series of initiatives, such as maintaining financial stability and promoting the revitalization of industries and the advancement of technological innovation, so as to create a sound investment environment and provide domestic and foreign companies with new opportunities and room for development. In 1999, the Chinese government publically announced its official plan to develop western China. The western development bureau affiliated to the state council released a list of 10 major projects to launch in 2008, with a combined budget of 436 billion Chinese yuan (64.12 billion U.S. dollars). These projects included new railway lines, the building of hydropower stations, coal mines, gas and oil transmission tube lines, but also developing of export-oriented economy and exchanges with foreign economic technologies. After 10 years construction, the western region of China has achieved progress in all different aspects, especially the following: Massive investment has boosted the region's output, effectively raising the GDP in all western regions, also affect: infrastructure development, total investment on capital asserts, the total amount of consumable, the industrial part increased, etc. FDI in the western regions increased 181.54% from 1998 to 2008.

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